Physiology and Hygiene Test

Study Guide

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Introduction

The Office of Licensure and Credentials of the State of New Jersey is responsible for examining credentials and issuing certificates that qualify individuals to seek employment as staff members in New Jersey's public schools. The Office clearly outlines the specific requirements for the certificate. In all cases, individuals seeking the Certificate of Eligibility with Advanced Standing (CEAS) must fulfill the Physiology and Hygiene requirement. NJ Department of Education, Physiology and Hygiene regulations requires all applicants for instructional certification to pass an examination in physiology and hygiene, including the effects of narcotics and alcohol. Candidates in the Georgian Court University teacher education program are required to take and pass the Georgian Court University Physiology and Hygiene exam in this area prior to student teaching. This exam is administered at Georgian Court University periodically throughout each semester. You may consult the School of Education for future test dates.

This booklet is a compilation of the most recent state and federal government documents and is designed to serve as a source of information and study guide for individuals who must take the test. In rare cases, the printed material in the downloaded pamphlets is difficult to read. If necessary, the reader should go to the listed sources found on the reference page. The content areas covered include but are not limited to personal health and hygiene, nutrition, legal responsibilities of educators in dealing with health related issues of their students and state mandates for specific health related topics to be included in the district curriculum.

Dietary Guidelines for Americans 2005

Chapter 1 Background and Purpose of the *Dietary Guidelines for Americans*

The *Dietary Guidelines for Americans [Dietary Guidelines]*, first published in 1980, provides science-based advice to promote health and to reduce risk for chronic diseases through diet and physical activity. The recommendations contained within the *Dietary Guidelines* are targeted to the general public over 2 years of age who are living in the United States. Because of its focus on health promotion and risk reduction, the *Dietary Guidelines* form the basis of federal food, nutrition education, and information programs.

By law (Public Law 101-445, Title III, 7 U.S.C. 5301 et seq.), the *Dietary Guidelines* is reviewed, updated if necessary, and published every 5 years. The process to create the *Dietary Guidelines* is a joint effort of the U.S. Department of Health and Human Services (HHS) and the U.S. Department of Agriculture (USDA) and has evolved to include three stages.

In the first stage, an external scientific Advisory Committee appointed by the two Departments conducted an analysis of new scientific information and prepared a report summarizing its findings.[2] The Advisory Committee's report was made available to the public and Government agencies for comment. The Committee's analysis was the primary resource for development of the *Dietary Guidelines* by the Departments. A significant amount of the new scientific information used by the *Dietary Guidelines* Advisory Committee (DGAC) was based on the Dietary Reference Intake (DRI) reports published since 2000 by the Institute of Medicine (IOM), in particular the macronutrient report and the fluid and electrolyte report.

During the second stage, the Departments jointly developed Key Recommendations based on the Advisory Committee's report and public and agency comments. The *Dietary Guidelines* details these science-based policy recommendations. Finally, in the third stage, the two Departments developed messages communicating the *Dietary Guidelines* to the general public.

Because of the three-part process used to develop and communicate the 2005 *Dietary Guidelines*, this publication and the report of the DGAC differ in scope and purpose compared to reports for previous versions of the Guidelines. The 2005 DGAC report is a detailed scientific analysis that identifies key issues such as energy balance, the consequences of a sedentary lifestyle, and the need to emphasize certain food choices to address nutrition issues for the American public. The scientific report was used to develop the *Dietary Guidelines* jointly between the two Departments, and this publication forms the basis of recommendations that will be used by USDA and HHS for program and policy development. Thus it is a publication oriented toward policymakers, nutrition educators, nutritionists and healthcare providers rather than to the general public, as with previous versions of the *Dietary Guidelines*, and contains more technical information.

New sections in the *Dietary Guidelines*, consistent with its use for program development, are a glossary of terms and appendixes with detailed information about the USDA Food Guide and the

Dietary Approaches to Stop Hypertension (DASH) Eating Plan as well as tables listing sources of some nutrients. Consumer messages have been developed to educate the public about the Key Recommendations in the *Dietary Guidelines* and will be used in materials targeted for consumers separate from this publication. In organizing the *Dietary Guidelines* for the Departments, chapters 2 to 10 were given titles that characterize the topic of each section, and the *Dietary Guidelines* itself is presented as an integrated set of Key Recommendations in each topic area.

These Key Recommendations are based on a preponderance of the scientific evidence of nutritional factors that are important for lowering risk of chronic disease and promoting health. To optimize the beneficial impact of these recommendations on health, the *Guidelines* should be implemented in their entirety.

IMPORTANCE OF THE *DIETARY GUIDELINES* FOR HEALTH PROMOTION AND DISEASE PREVENTION

Good nutrition is vital to good health and is absolutely essential for the healthy growth and development of children and adolescents. Major causes of morbidity and mortality in the United States are related to poor diet and a sedentary lifestyle. Specific diseases and conditions linked to poor diet include cardiovascular disease, hypertension, dyslipidemia, type 2 diabetes, overweight and obesity, osteoporosis, constipation, diverticular disease, iron deficiency anemia, oral disease, malnutrition, and some cancers. Lack of physical activity has been associated with cardiovascular disease, hypertension, overweight and obesity, osteoporosis, diabetes, and certain cancers. Furthermore, muscle strengthening and improving balance can reduce falls and increase functional status among older adults. Together with physical activity, a high-quality diet that does not provide excess calories should enhance the health of most individuals.

Poor diet and physical inactivity, resulting in an energy imbalance (more calories consumed than expended), are the most important factors contributing to the increase in overweight and obesity in this country. Moreover, overweight and obesity are major risk factors for certain chronic diseases such as diabetes. In 1999-2002, 65 percent of U.S. adults were overweight, an increase from 56 percent in 1988-1994. Data from 1999-2002 also showed that 30 percent of adults were obese, an increase from 23 percent in an earlier survey. Dramatic increases in the prevalence of overweight have occurred in children and adolescents of both sexes, with approximately 16 percent of children and adolescents aged 6 to 19 years considered to be overweight (1999-2002).[2] In order to reverse this trend, many Americans need to consume fewer calories, be more active, and make wiser choices within and among food groups. The *Dietary Guidelines* provides a framework to promote healthier lifestyles (see ch. 3).

Given the importance of a balanced diet to health, the intent of the *Dietary Guidelines* is to summarize and synthesize knowledge regarding individual nutrients and food components into recommendations for an overall pattern of eating that can be adopted by the general public. These patterns are exemplified by the USDA Food Guide and the DASH Eating Plan (see ch. 2 and app. A). The *Dietary Guidelines* is applicable to the food preferences of different racial/ethnic groups, vegetarians, and other groups. This concept of balanced eating patterns should be utilized in planning diets for various population groups.

There is a growing body of evidence which demonstrates that following a diet that complies with

the *Dietary Guidelines* may reduce the risk of chronic disease. Recently, it was reported that dietary patterns consistent with recommended dietary guidance were associated with a lower risk of mortality among individuals age 45 years and older in the United States.[4] The authors of the study estimated that about 16 percent and 9 percent of mortality from any cause in men and women, respectively, could be eliminated by the adoption of desirable dietary behaviors. Currently, adherence to the *Dietary Guidelines* is low among the U.S. population. Data from USDA illustrate the degree of change in the overall dietary pattern of Americans needed to be consistent with a food pattern encouraged by the *Dietary Guidelines* (fig. 1).

A basic premise of the *Dietary Guidelines* is that nutrient needs should be met primarily through consuming foods. Foods provide an array of nutrients (as well as phytochemicals, antioxidants, etc.) and other compounds that may have beneficial effects on health. In some cases, fortified foods may be useful sources of one or more nutrients that otherwise might be consumed in less than recommended amounts. Supplements may be useful when they fill a specific identified nutrient gap that cannot or is not otherwise being met by the individual's intake of food. Nutrient supplements cannot replace a healthful diet. Individuals who are already consuming the recommended amount of a nutrient in food will not achieve any additional health benefit if they also take the nutrient as a supplement. In fact, in some cases, supplements and fortified foods may cause intakes to exceed the safe levels of nutrients. Another important premise of the *Dietary Guidelines* is that foods should be prepared and handled in such a way that reduces risk of foodborne illness.

USES OF THE *DIETARY GUIDELINES*

The *Dietary Guidelines* is intended primarily for use by policymakers, healthcare providers, nutritionists, and nutrition educators. While the *Dietary Guidelines* was developed for healthy Americans 2 years of age and older, where appropriate, the needs of specific population groups have been addressed. In addition, other individuals may find this report helpful in making healthful choices. As noted previously, the recommendations contained within the *Dietary Guidelines* will aid the public in reducing their risk for obesity and chronic disease. Specific uses of the *Dietary Guidelines* include:

Development of Educational Materials and Communications.

The information in the *Dietary Guidelines* is useful for the development of educational materials. For example, the federal dietary guidance-related publications are required by law to be based on the *Dietary Guidelines*. In addition, this publication will guide the development of messages to communicate the *Dietary Guidelines* to the public. Finally, the USDA Food Guide, the food label, and Nutrition Facts Panel provide information that is useful for implementing the key recommendations in the *Dietary Guidelines* and should be integrated into educational and communication messages.

Development of Nutrition-Related Programs.

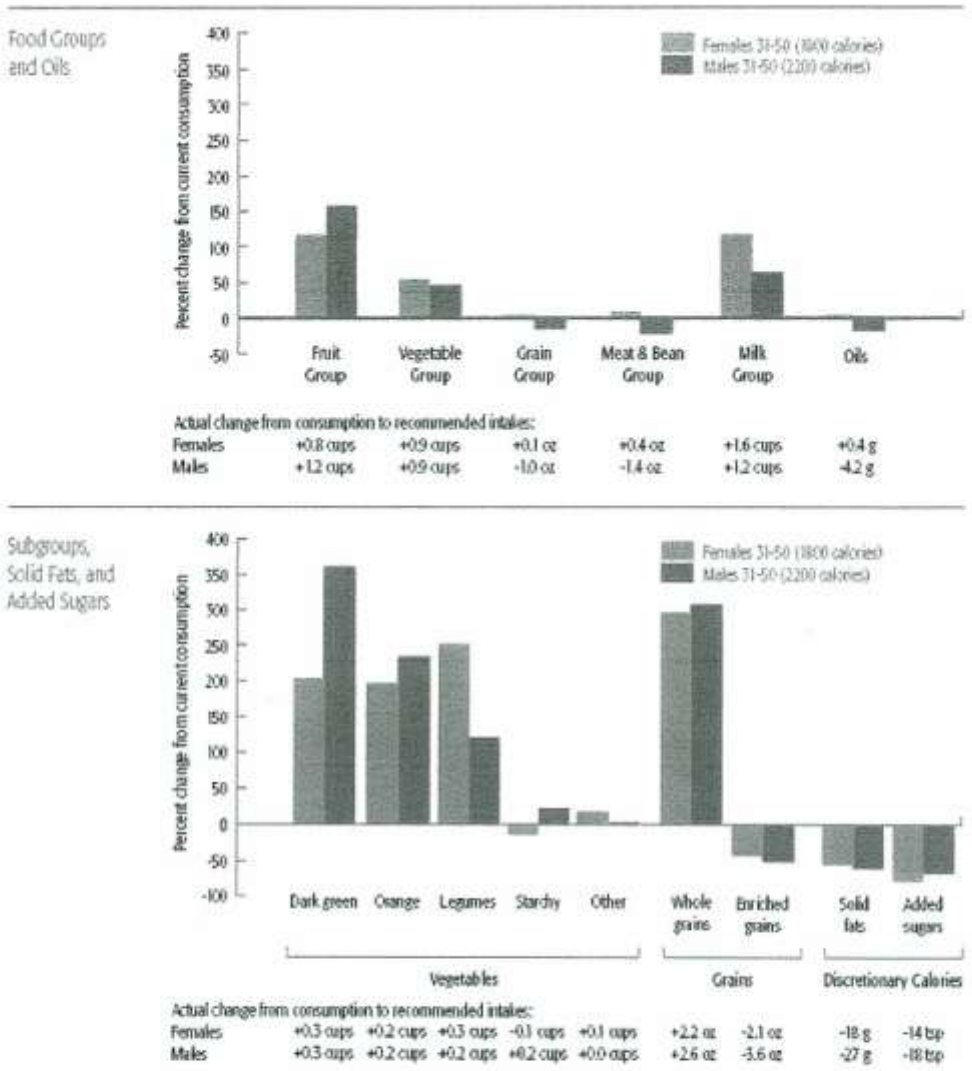
The *Dietary Guidelines* aids policymakers in designing and implementing nutrition-related programs. The Federal Government bases its nutrition programs, such as the National Child Nutrition Programs or the Elderly Nutrition Program, on the *Dietary Guidelines*.

Development of Authoritative Statements.

The *Dietary Guidelines* has the potential to provide authoritative statements as provided for in the Food and Drug Administration Modernization Act (FDAMA). Because the recommendations are interrelated and mutually dependent, the statements in this publication should be used together in the context of an overall healthful diet. Likewise, because the *Dietary Guidelines* contains discussions about emerging science, only statements included in the Executive Summary and the highlighted boxes entitled "Key Recommendations," which reflect the preponderance of scientific evidence, can be used for identification of authoritative statements.

FIGURE 1. Percent Increase or Decrease From Current Consumption (Zero Line) to Recommended Intakes [a,b]

A graphical depiction of the degree of change in average daily food consumption by Americans that would be needed to be consistent with the food patterns encouraged by the *Dietary Guidelines* for Americans. The zero line represents average consumption levels from each food group or subgroup by females 31 to 50 years of age and males 31 to 50 years of age. Bars above the zero line represent recommended increases in food group consumption, while bars below the line represent recommended decreases.



[a] USDA Food Guide in comparison to National Health and Nutrition Examination Survey 2001-2002 consumption data.

[b] Increases in amounts of some food groups are offset by decreases in amounts of solid fats (i.e., saturated and *trans* fats) and added sugars so that total calorie intake is at the recommended level.

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[2] For more information about the process, summary data, and the resources used by the Advisory Committee, see the 2005 Dietary Guidelines Advisory Committee Report (2005 DGAC Report) at http://www.health.gov/dietaryguidelines.

[3] Hedley AA, Ogden CL, Johnson CL, Carroll MD, Curtin LR, Flegal KM. Prevalence of overweight and obesity

among U.S. children, adolescents, and adults, 1999-2002. *Journal of the American Medical Association (JAMA)* 291(23):2847-2850, 2004.

[4] Kant AK, Graubard BI, Schatzkin A. Dietary patterns predict mortality in a national cohort: The national health interview surveys, 1987 and 1992. *Journal of Nutrition (J Nutr)* 134:1793-1799, 2004.

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Dietary Guidelines for Americans 2005 USDA

Chapter 3 Weight Management

OVERVIEW

The prevalence of obesity in the United States has doubled in the past two decades. Nearly one-third of adults are obese, that is, they have a body mass index (BMI) of 30 or greater. One of the fastest growing segments of the population is that with a BMI $\geq$ 30 with accompanying comorbidities. Over the last two decades, the prevalence of overweight among children and adolescents has increased substantially; it is estimated that as many as 16 percent of children and adolescents are overweight, representing a doubling of the rate among children and tripling of the rate among adolescents. A high prevalence of overweight and obesity is of great public health concern because excess body fat leads to a higher risk for premature death, type 2 diabetes, hypertension, dyslipidemia, cardiovascular disease, stroke, gall bladder disease, respiratory dysfunction, gout, osteoarthritis, and certain kinds of cancers.

Ideally, the goal for adults is to achieve and maintain a body weight that optimizes their health. However, for obese adults, even modest weight loss (e.g., 10 pounds) has health benefits, and the prevention of further weight gain is very important. For overweight children and adolescents, the goal is to slow the rate of weight gain while achieving normal growth and development. Maintaining a healthy weight throughout childhood may reduce the risk of becoming an overweight or obese adult. Eating fewer calories while increasing physical activity are the keys to controlling body weight. While overweight and obesity are currently significant public health issues, not all Americans need to lose weight. People at a healthy weight should strive to maintain their weight, and underweight individuals may need to increase their weight.

KEY RECOMMENDATIONS

- To maintain body weight in a healthy range, balance calories from foods and beverages with calories expended.
- To prevent gradual weight gain over time, make small decreases in food and beverage calories and increase physical activity.

Key Recommendations for Specific Population Groups

- *Those who need to lose weight.* Aim for a slow, steady weight loss by decreasing calorie intake while maintaining an adequate nutrient intake and increasing physical activity.
- *Overweight children.* Reduce the rate of body weight gain while allowing growth and development. Consult a healthcare provider before placing a child on a weight-reduction diet.
- *Pregnant women.* Ensure appropriate weight gain as specified by a

healthcare provider.

- *Breastfeeding women.* Moderate weight reduction is safe and does not compromise weight gain of the nursing infant.
- *Overweight adults and overweight children with chronic diseases and/or on medication.* Consult a healthcare provider about weight loss strategies prior to starting a weight-reduction program to ensure appropriate management of other health conditions.

DISCUSSION

Overweight and obesity in the United States among adults and children has increased significantly over the last two decades. Those following typical American eating and activity patterns are likely to be consuming diets in excess of their energy requirements. However, caloric intake is only one side of the energy balance equation. Caloric expenditure needs to be in balance with caloric intake to maintain body weight and must exceed caloric intake to achieve weight loss (see tables 3 and 4). To reverse the trend toward obesity, most Americans need to eat fewer calories, be more active, and make wiser food choices.

Prevention of weight gain is critical because while the behaviors required are the same, the extent of the behaviors required to lose weight makes weight loss more challenging than prevention of weight gain. Since many adults gain weight slowly over time, even small decreases in calorie intake can help avoid weight gain, especially if accompanied by increased physical activity. For example, for most adults a reduction of 50 to 100 calories per day may prevent gradual weight gain, whereas a reduction of 500 calories or more per day is a common initial goal in weight-loss programs. Similarly, up to 60 minutes of moderate- to vigorous-intensity physical activity per day may be needed to prevent weight gain, but as much as 60 to 90 minutes of moderate-intensity physical activity per day is recommended to sustain weight loss for previously overweight people. It is advisable for men over age 40, women over age 50, and those with a history of chronic diseases such as heart disease or diabetes to consult with a healthcare provider before starting a vigorous exercise program. However, many people can safely increase their physical activity without consulting a healthcare provider.[7]

Monitoring body fat regularly can be a useful strategy for assessing the need to adjust caloric intake and energy expenditure. Two surrogate measures used to approximate body fat are BMI (adults and children) and waist circumference (adults).[8] BMI is defined as weight in kilograms divided by height, in meters, squared. For adults, weight status is based on the absolute BMI level (fig. 2). For children and adolescents, weight status is determined by the comparison of the individual's BMI with age- and gender-specific percentile values (see fig. 3 for a sample boys' growth curve). Additional growth curves can be found at http://www.cdc.gov/growthcharts. BMI is more accurate at approximating body fat than is measuring body weight alone. However, BMI has some limitations. BMI overestimates body fat in people who are very muscular and underestimates body fat in people who have lost muscle mass. The relationship between BMI and body fat varies somewhat with age, gender, and ethnicity. In addition, for adults, BMI is a better predictor of a population's disease risk than an individual's risk of chronic disease.[8] For children gaining excess weight, small decreases in energy intake reduce the rate at which they gain weight

(body fat), thus improving their BMI percentile over time. As another surrogate measure, waist circumference can approximate abdominal fat but should be measured very carefully. Fat located in the abdominal region is associated with a greater health risk than peripheral fat.[8]

Some proposed calorie-lowering strategies include eating foods that are low in calories for a given measure of food (e.g., many kinds of vegetables and fruits and some soups). However, when making changes to improve nutrient intake, one needs to make substitutions to avoid excessive calorie intake. The healthiest way to reduce calorie intake is to reduce one's intake of added sugars, fats, and alcohol, which all provide calories but few or no essential nutrients (for more information, see chs. 6, 7, and 9).

Special attention should be given to portion sizes, which have increased significantly over the past two decades (http://hin.nhlbi.nih.gov/portion/index.htm). Though there are no empirical studies to show a causal relationship between increased portion sizes and obesity, there are studies showing that controlling portion sizes helps limit calorie intake, particularly when eating calorie-dense foods (foods that are high in calories for a given measure of food). Therefore, it is essential that the public understand how portion sizes compare to a recommended amount of food (i.e., serving) from each food group at a specific caloric level. The understanding of serving size and portion size is important in following either the DASH Eating Plan or the USDA Food Guide (see app. A). When using packaged foods with nutrient labels, people should pay attention to the units for serving sizes and how they compare to the serving sizes in the USDA Food Guide and the DASH Eating Plan.

Lifestyle change in diet and physical activity is the best first choice for weight loss. A reduction in 500 calories or more per day is commonly needed. When it comes to body weight control, it is calories that count—not the proportions of fat, carbohydrates, and protein in the diet. However, when individuals are losing weight, they should follow a diet that is within the Acceptable Macronutrient Distribution Ranges (AMDR) for fat, carbohydrates, and protein, which are 20 to 35 percent of total calories, 45 to 65 percent of total calories, and 10 to 35 percent of total calories, respectively. Diets that provide very low or very high amounts of protein, carbohydrates, or fat are likely to provide low amounts of some nutrients and are not advisable for long-term use. Although these kinds of weight- loss diets have been shown to result in weight reduction, the maintenance of a reduced weight ultimately will depend on a change in lifestyle. Successful and sustainable weight loss and weight maintenance strategies require attention to both sides of the energy balance equation (i.e., caloric intake and energy expenditure).

TABLE 4. Calories/Hour Expended in Common Physical Activities

Some examples of physical activities commonly engaged in and the average amount of calories a 154-pound individual will expend by engaging in each activity for 1 hour. The expenditure value encompasses both resting metabolic rate calories and activity expenditure. Some of the activities can constitute either moderate- or vigorous-intensity physical activity depending on the rate at which they are carried out (for walking and bicycling).

Moderate Physical Activity	Approximate Calories/Hr for a 154 lb Person[a]

Hiking	370
Light gardening/yard work	330
Dancing	330
Golf (walking and carrying clubs)	330
Bicycling (<10 mph)	290
Walking (3.5 mph)	280
Weight lifting (general light workout)	220
Stretching	180
Vigorous Physical Activity	**Approximate Calories/Hr for a 154 lb Person[a]**
Running/jogging (5 mph)	590
Bicycling (>10 mph)	590
Swimming (slow freestyle laps)	510
Aerobics	480
Walking (4.5 mph)	460
Heavy yard work (chopping wood)	440
Weight lifting (vigorous effort)	440
Basketball (vigorous)	440

[a] Calories burned per hour will be higher for persons who weigh more than 154 lbs (70 kg) and lower for persons who weigh less.
Source: Adapted from the 2005 DGAC Report.

FIGURE 2. Adult BMI Chart

Locate the height of interest in the left-most column and read across the row for that height to the weight of interest. Follow the column of the weight up to the top row that lists the BMI. BMI of 18.5-24.9 is the healthy weight range, BMI of 25-29.9 is the overweight range, and BMI of 30 and above is in the obese range.

BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Height							Weight in Pounds										
4'10"	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167
4'11"	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173
5'	97	102	107	112	118	123	128	133	138	143	148	153	158	163	158	174	179
5'1"	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185
5'2"	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191
5'3"	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197
5'4"	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204
5'5"	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210
5'6"	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216
5'7"	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223
5'8"	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230
5'9"	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236
5'10"	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243
5'11"	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250
6'	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258
6'1"	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265
6'2"	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272
6'3"	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279
	Healthy Weight						Overweight					Obese					

Source: Evidence Report of Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults, 1998. NIH/National Heart, Lung, and Blood Institute (NHLBI).

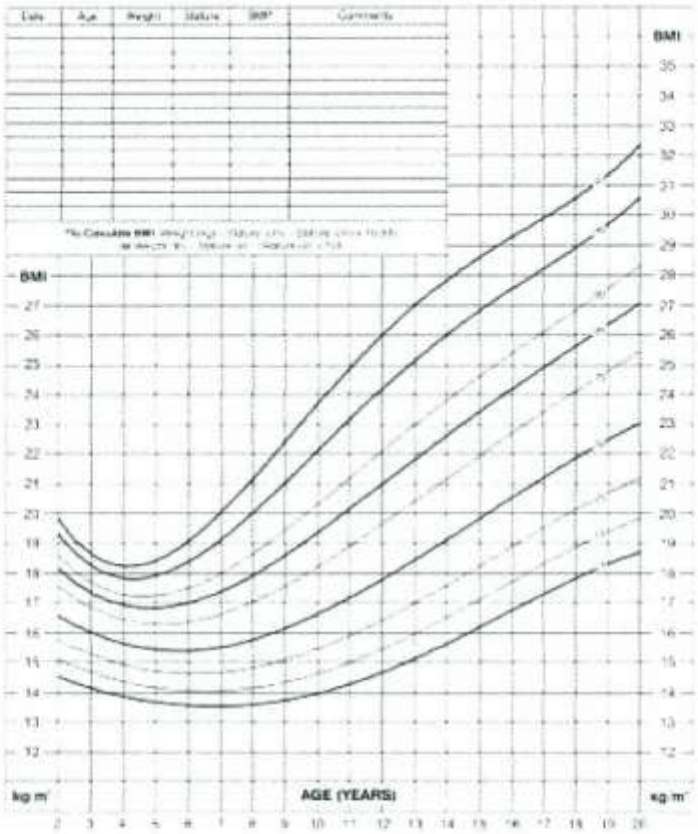
FIGURE 3. Example of Boys' BMI Growth Curve (2 to 20 years): Boys' Body Mass Index-For-Age Percentiles

Calculate the BMI for an individual child using the following:

BMI = Weight (kg)/(Height [cm])^2 x 10,000 or BMI = Weight (lb)/(Height [in])^2 x 703

Find the age of the child on the bottom, x-axis, and read up the chart from that age to the calculated BMI on the left and right, y-axis. The curve that is closest to the spot where the age and BMI of the child meet on the graph indicate the BMI percentile for this child relative to the population.

2 to 20 years: Boys
Body mass index-for-age percentiles



Published May 30, 2000 (modified 10/16/00).
Source: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion. http://www.cdc.gov/growthcharts (2000). Other growth charts are available at this source.

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[7] For more information on recommendations to consult a healthcare provider, see Physical Activity and Public Health—A Recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine, *JAMA* 273:402-407, 1995. http://wonder.cdc.gov/wonder/prevguid/p0000391/P0000391.asp.

[8] NIH Publication Number 00-4084, The Practical Guide: Identification, Evaluation and Treatment of Overweight and Obesity in Adults, U.S. Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, October 2000. http://www.nhlbi.nih.gov/guidelines/obesity/prctgd_c.pdf

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Chapter 4 Physical Activity

OVERVIEW

Americans tend to be relatively inactive. In 2002, 25 percent of adult Americans did not participate in any leisure time physical activities in the past month,[9] and in 2003, 38 percent of students in grades 9 to 12 viewed television 3 or more hours per day.[10] Regular physical activity and physical fitness make important contributions to one's health, sense of well-being, and maintenance of a healthy body weight. Physical activity is defined as any bodily movement produced by skeletal muscles resulting in energy expenditure (http://www.cdc.gov/nccdphp/dnpa/physical/terms/index.htm). In contrast, physical fitness is a multi-component trait related to the ability to perform physical activity. Maintenance of good physical fitness enables one to meet the physical demands of work and leisure comfortably. People with higher levels of physical fitness are also at lower risk of developing chronic disease. Conversely, a sedentary lifestyle increases risk for overweight and obesity and many chronic diseases, including coronary artery disease, hypertension, type 2 diabetes, osteoporosis, and certain types of cancer. Overall, mortality rates from all causes of death are lower in physically active people than in sedentary people. Also, physical activity can aid in managing mild to moderate depression and anxiety.

KEY RECOMMENDATIONS

- Engage in regular physical activity and reduce sedentary activities to promote health, psychological well-being, and a healthy body weight.
  - To reduce the risk of chronic disease in adulthood: Engage in at least 30 minutes of moderate-intensity physical activity, above usual activity, at work or home on most days of the week.
  - For most people, greater health benefits can be obtained by engaging in physical activity of more vigorous intensity or longer duration.
  - To help manage body weight and prevent gradual, unhealthy body weight gain in adulthood: Engage in approximately 60 minutes of moderate- to vigorous-intensity activity on most days of the week while not exceeding caloric intake requirements.
  - To sustain weight loss in adulthood: Participate in at least 60 to 90 minutes of daily moderate-intensity physical activity while not exceeding caloric intake requirements. Some people may need to consult with a healthcare provider

before participating in this level of activity.
- Achieve physical fitness by including cardiovascular conditioning, stretching exercises for flexibility, and resistance exercises or calisthenics for muscle strength and endurance.

Key Recommendations for Specific Population Groups

- *Children and adolescents.* Engage in at least 60 minutes of physical activity on most, preferably all, days of the week.
- *Pregnant women.* In the absence of medical or obstetric complications, incorporate 30 minutes or more of moderate-intensity physical activity on most, if not all, days of the week. Avoid activities with a high risk of falling or abdominal trauma.
- *Breastfeeding women.* Be aware that neither acute nor regular exercise adversely affects the mother's ability to successfully breastfeed.
- *Older adults.* Participate in regular physical activity to reduce functional declines associated with aging and to achieve the other benefits of physical activity identified for all adults.

DISCUSSION

Regular physical activity has been shown to reduce the risk of certain chronic diseases, including high blood pressure, stroke, coronary artery disease, type 2 diabetes, colon cancer and osteoporosis. Therefore, to reduce the risk of chronic disease, it is recommended that adults engage in at least 30 minutes of moderate-intensity physical activity on most, preferably all, days of the week. For most people, greater health benefits can be obtained by engaging in physical activity of more vigorous intensity or of longer duration. In addition, physical activity appears to promote psychological well-being and reduce feelings of mild to moderate depression and anxiety.

Regular physical activity is also a key factor in achieving and maintaining a healthy body weight for adults and children. To prevent the gradual accumulation of excess weight in adulthood, up to 30 additional minutes per day may be required over the 30 minutes for reduction of chronic disease risk and other health benefits. That is, approximately 60 minutes of moderate- to vigorous-intensity physical activity on most days of the week may be needed to prevent unhealthy weight gain (see table 4 for some examples of moderate- and vigorous-intensity physical activities). While moderate-intensity physical activity can achieve the desired goal, vigorous-intensity physical activity generally provides more benefits than moderate-intensity physical activity. Control of caloric intake is also advisable. However, to sustain weight loss for previously overweight/obese people, about 60 to 90 minutes of moderate-intensity physical activity per day is recommended.

Most adults do not need to see their healthcare provider before starting a moderate-intensity physical activity program. However, men older than 40 years and women older than 50 years who plan a vigorous program or who have either chronic disease or risk factors for chronic

disease should consult their physician to design a safe, effective program. It is also important during leisure time to limit sedentary behaviors, such as television watching and video viewing, and replace them with activities requiring more movement. Reducing these sedentary activities appears to be helpful in treating and preventing overweight among children and adolescents.

Different intensities and types of exercise confer different benefits. Vigorous physical activity (e.g., jogging or other aerobic exercise) provides greater benefits for physical fitness than does moderate physical activity and burns more calories per unit of time. Resistance exercise (such as weight training, using weight machines, and resistance band workouts) increases muscular strength and endurance and maintains or increases muscle mass. These benefits are seen in adolescents, adults, and older adults who perform resistance exercises on 2 or more days per week. Also, weight-bearing exercise has the potential to reduce the risk of osteoporosis by increasing peak bone mass during growth, maintaining peak bone mass during adulthood, and reducing the rate of bone loss during aging. In addition, regular exercise can help prevent falls, which is of particular importance for older adults.

The barrier often given for a failure to be physically active is lack of time. Setting aside 30 to 60 consecutive minutes each day for planned exercise is one way to obtain physical activity, but it is not the only way. Physical activity may include short bouts (e.g., 10-minute bouts) of moderate-intensity activity. The accumulated total is what is important—both for health and for burning calories. Physical activity can be accumulated through three to six 10-minute bouts over the course of a day.

Elevating the level of daily physical activity may also provide indirect nutritional benefits. A sedentary lifestyle limits the number of calories that can be consumed without gaining weight. The higher a person's physical activity level, the higher his or her energy requirement and the easier it is to plan a daily food intake pattern that meets recommended nutrient requirements.

Proper hydration is important when participating in physical activity. Two steps that help avoid dehydration during prolonged physical activity or when it is hot include: (1) consuming fluid regularly during the activity and (2) drinking several glasses of water or other fluid after the physical activity is completed (see chs. 2 and 8).

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[9] Behavioral Risk Factor Surveillance System, Surveillance for Certain Health Behaviors Among Selected Local Areas-United States, Behavioral Risk Factor Surveillance System, 2002, *Morbidity and Mortality Weekly Report (MMWR)*, 53, No SS-05. http://www.cdc.gov/brfss/.

[10] Youth Risk Behavior Surveillance System, Youth Risk Behavior Surveillance-United States, 2003 *MMWR* 53(SS-2):1-29, 2004. http://www.cdc.gov/healthyyouth/yrbs/.

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Updated Wednesday, July 09, 2008 by ODPHP Web Support

Dietary Guidelines for Americans 2005 USDA

Chapter 5 Food Groups To Encourage

OVERVIEW

Increased intakes of fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products are likely to have important health benefits for most Americans. While protein is an important macronutrient in the diet, most Americans are already currently consuming enough (AMDR = 10 to 35 percent of calories) and do not need to increase their intake. As such, protein consumption, while important for nutrient adequacy, is not a focus of this document. Although associations have been identified between specific food groups (e.g., fruits and vegetables) and reduced risk for chronic diseases, the effects are interrelated and the health benefits should be considered in the context of an overall healthy diet that does not exceed calorie needs (such as the USDA Food Guide or the DASH Eating Plan; see ch. 2). The strength of the evidence for the association between increased intake of fruits and vegetables and reduced risk of chronic diseases is variable and depends on the specific disease, but an array of evidence points to beneficial health effects.

Compared with the many people who consume a dietary pattern with only small amounts of fruits and vegetables, those who eat more generous amounts as part of a healthful diet are likely to have reduced risk of chronic diseases, including stroke and perhaps other cardiovascular diseases, type 2 diabetes, and cancers in certain sites (oral cavity and pharynx, larynx, lung, esophagus, stomach, and colon-rectum). Diets rich in foods containing fiber, such as fruits, vegetables, and whole grains, may reduce the risk of coronary heart disease. Diets rich in milk and milk products can reduce the risk of low bone mass throughout the life cycle. The consumption of milk products is especially important for children and adolescents who are building their peak bone mass and developing lifelong habits. Although each of these food groups may have a different relationship with disease outcomes, the adequate consumption of all food groups contributes to overall health.

KEY RECOMMENDATIONS

- Consume a sufficient amount of fruits and vegetables while staying within energy needs. Two cups of fruit and 2½ cups of vegetables per day are recommended for a reference 2,000-calorie intake, with higher or lower amounts depending on the calorie level.
- Choose a variety of fruits and vegetables each day. In particular, select from all five vegetable subgroups (dark green, orange, legumes, starchy vegetables, and other vegetables) several times a week.
- Consume 3 or more ounce-equivalents of whole-grain products per day, with the rest of the recommended grains coming from

enriched or whole-grain products. In general, at least half the grains should come from whole grains.
- Consume 3 cups per day of fat-free or low-fat milk or equivalent milk products.

Key Recommendations for Specific Population Groups

- *Children and adolescents.* Consume whole-grain products often; at least half the grains should be whole grains. Children 2 to 8 years should consume 2 cups per day of fat-free or low-fat milk or equivalent milk products. Children 9 years of age and older should consume 3 cups per day of fat-free or low-fat milk or equivalent milk products.

DISCUSSION

Fruits, vegetables, whole grains, and milk products are all important to a healthful diet and can be good sources of the nutrients of concern (see ch. 2). When increasing intake of fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products, it is important to decrease one's intake of less-nutrient-dense foods to control calorie intake. The 2,000-calorie level used in the discussion is a reference level only; it is not a recommended calorie intake because many Americans should be consuming fewer calories to maintain a healthy weight.

Fruits and Vegetables

Four and one-half cups (nine servings) of fruits and vegetables are recommended daily for the reference 2,000-calorie level, with higher or lower amounts depending on the caloric level. This results in a range of 2½ to 6½ cups (5 to 13 servings) of fruits and vegetables each day for the 1,200- to 3,200-calorie levels[11] (app. A-2). Fruits and vegetables provide a variety of micronutrients and fiber. Table 5 provides a list of fruits and vegetables that are good sources of vitamins A (as carotenoids) and C, folate, and potassium. In the fruit group, consumption of whole fruits (fresh, frozen, canned, dried) rather than fruit juice for the majority of the total daily amount is suggested to ensure adequate fiber intake. Different vegetables are rich in different nutrients. In the vegetable group, weekly intake of specific amounts from each of five vegetable subgroups (dark green, orange, legumes [dry beans], starchy, and other vegetables)[12] is recommended for adequate nutrient intake. Each subgroup provides a somewhat different array of nutrients. In the USDA Food Guide at the reference 2,000-calorie level, the following weekly amounts are recommended:

Dark green vegetables	3 cups/week
Orange vegetables	2 cups/week
Legumes (dry beans)	3 cups/week
Starchy vegetables	3 cups/week

Other vegetables	6 ½ cups/week

Most current consumption patterns do not achieve the recommended intakes of many of these vegetables. The DASH Eating Plan and the USDA Food Guide suggest increasing intakes of dark green vegetables, orange vegetables, and legumes (dry beans) as part of the overall recommendation to have an adequate intake of fruits and vegetables (see ch. 2).

Whole Grains

In addition to fruits and vegetables, whole grains are an important source of fiber and other nutrients. Whole grains, as well as foods made from them, consist of the entire grain seed, usually called the kernel. The kernel is made of three components—the bran, the germ, and the endosperm. If the kernel has been cracked, crushed, or flaked, then it must retain nearly the same relative proportions of bran, germ, and endosperm as the original grain to be called whole grain. In the grain-refining process, most of the bran and some of the germ is removed, resulting in the loss of dietary fiber (also known as cereal fiber), vitamins, minerals, lignans, phytoestrogens, phenolic compounds, and phytic acid. Some manufacturers add bran to grain products to increase the dietary fiber content. Refined grains are the resulting product of the grain-refining processing. Most refined grains are enriched before being further processed into foods. Enriched refined grain products that conform to standards of identity are required by law to be fortified with folic acid, as well as thiamin, riboflavin, niacin, and iron. Food manufacturers may fortify whole-grain foods where regulations permit the addition of folic acid. Currently, a number of whole-grain, ready-to-eat breakfast cereals are fortified with folic acid. As illustrated by the comparison of whole-wheat and enriched white flours in table 6, many nutrients occur at higher or similar levels in whole grains when compared to enriched grains, but whole grains have less folate unless they have been fortified with folic acid.

Consuming at least 3 or more ounce-equivalents of whole grains per day can reduce the risk of several chronic diseases and may help with weight maintenance. Thus, daily intake of at least 3 ounce-equivalents of whole grains per day is recommended by substituting whole grains for refined grains. However, because three servings may be difficult for younger children to achieve, it is recommended that they increase whole grains into their diets as they grow. At all calorie levels, all age groups should consume at least half the grains as whole grains to achieve the fiber recommendation. All grain servings can be whole-grain; however, it is advisable to include some folate-fortified products, such as folate-fortified whole-grain cereals, in these whole-grain choices.

Whole grains cannot be identified by the color of the food; label-reading skills are needed. Table 7 identifies names of whole grains that are available in the United States. For information about the ingredients in whole-grain and enriched-grain products, read the ingredient list on the food label. For many whole-grain products, the words "whole" or "whole grain" will appear before the grain ingredient's name. The whole grain should be the first ingredient listed. Wheat flour, enriched flour, and degerminated cornmeal are not whole grains. The Food and Drug Administration requires foods that bear the whole-grain health claim to (1) contain 51 percent or more whole-grain ingredients by weight per reference amount and (2) be low in fat.

Milk and Milk Products

Another source of nutrients is milk and milk products. Milk product consumption has been associated with overall diet quality and adequacy of intake of many nutrients. The intake of milk products is especially important to bone health during childhood and adolescence. Studies specifically on milk and other milk products, such as yogurt and cheese, showed a positive relationship between the intake of milk and milk products and bone mineral content or bone mineral density in one or more skeletal sites (see table 1 for information on equivalent amounts of milk products).

Adults and children should not avoid milk and milk products because of concerns that these foods lead to weight gain. There are many fat-free and low-fat choices without added sugars that are available and consistent with an overall healthy dietary plan. If a person wants to consider milk alternatives because of lactose intolerance, the most reliable and easiest ways to derive the health benefits associated with milk and milk product consumption is to choose alternatives within the milk food group, such as yogurt or lactose-free milk, or to consume the enzyme lactase prior to the consumption of milk products. For individuals who choose to or must avoid all milk products (e.g., individuals with lactose intolerance, vegans), non-dairy calcium-containing alternatives may be selected to help meet calcium needs (app. B-4).

TABLE 5. Fruits, Vegetables, and Legumes (Dry Beans) That Contain Vitamin A (Carotenoids), Vitamin C, Folate, and Potassium

Many of the fruits, vegetables, and legumes (beans) are considered to be important sources of vitamin A (as carotenoids), vitamin C, and potassium in the adult population. Intakes of these nutrients, based on dietary intake data or evidence of public health problems, may be of concern. Also listed are sources of naturally occurring folate, a nutrient considered to be of concern for women of childbearing age and those in the first trimester of pregnancy. Folic acid-fortified grain products, not listed in this table, are also good sources.

Sources of vitamin A (carotenoids) (see app. B-6)

- Bright orange vegetables like carrots, sweetpotatoes, and pumpkin
- Tomatoes and tomato products, red sweet pepper
- Leafy greens such as spinach, collards, turnip greens, kale, beet and mustard greens, green leaf lettuce, and romaine
- Orange fruits like mango, cantaloupe, apricots, and red or pink grapefruit

Sources of vitamin C

- Citrus fruits and juices, kiwi fruit, strawberries, guava, papaya, and cantaloupe
- Broccoli, peppers, tomatoes, cabbage (especially Chinese cabbage), brussels sprouts, and potatoes
- Leafy greens such as romaine, turnip greens, and spinach

Sources of folate

- Cooked dry beans and peas
- Oranges and orange juice
- Deep green leaves like spinach and mustard greens

Sources of potassium (see app. B-1)

- Baked white or sweetpotatoes, cooked greens (such as spinach), winter (orange) squash
- Bananas, plantains, many dried fruits, oranges and orange juice, cantaloupe, and honeydew melons
- Cooked dry beans
- Soybeans (green and mature)
- Tomato products (sauce, paste, puree)
- Beet greens

TABLE 6. Comparison of 100 Grams of Whole-Grain Wheat Flour and Enriched, Bleached, White, All-Purpose Flour

Some of the nutrients of concern and the fortification nutrients in 100 percent whole-wheat flour and enriched, bleached, all-purpose white (wheat) flour. Dietary fiber, calcium, magnesium and potassium, nutrients of concern, occur in much higher concentrations in the whole-wheat flour on a 100-gram basis (percent). The fortification nutrients-thiamin, riboflavin, niacin, and iron-are similar in concentration between the two flours, but folate, as Dietary Folate Equivalent (DFE), µg, is higher in the enriched white flour.

	100 Percent Whole-Grain Wheat Flour	Enriched, Bleached, All-Purpose White Flour
Calories, kcal	339.0	364.0
Dietary fiber, g	12.2	2.7
Calcium, mg	34.0	15.0
Magnesium, mg	138.0	22.0
Potassium, mg	405.0	107.0
Folate, DFE, µg	44.0	291.0
Thiamin, mg	0.5	0.8
Riboflavin, mg	0.2	0.5
Niacin, mg	6.4	5.9
Iron, mg	3.9	4.6

Source: Agricultural Research Service Nutrient Database for Standard Reference, Release 17.

TABLE 7. Whole Grains Available in the United States

Whole grains that are consumed in the United States either as a single food (e.g., wild rice, popcorn) or as an ingredient in a multi-ingredient food (e.g., in multi-grain breads). This listing of whole grains was determined from a breakdown of foods reported consumed in nationwide food consumption surveys, by amount consumed. The foods are listed in approximate order of amount consumed, but the order may change over time. In addition, other whole grains may be consumed that are not yet represented in the surveys.

Whole Wheat
Whole oats/oatmeal
Whole-grain corn
Popcorn
Brown rice
Whole rye
Whole-grain barley
Wild rice
Buckwheat
Triticale
Bulgur (cracked wheat)
Millet
Quinoa
Sorghum

Source: Agriculture Research Service Database for CSFII 1994-1996.

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[11] See appendix A-2 and table D1-16 from the 2005 DGAC Report (or USDA website) for information on children age 2 to 3 years.

[12] Includes all fresh, frozen, canned, cooked, or raw forms of vegetables. Examples of vegetables are dark green (broccoli, spinach, most greens); orange (carrots, sweetpotatoes, winter squash, pumpkin); legumes (dry beans, chickpeas, tofu); starchy (corn, white potatoes, green peas); other (tomatoes, cabbage, celery, cucumber, lettuce, onions, peppers, green beans, cauliflower, mushrooms, summer squash).

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Chapter 9 Alcoholic Beverages

Overview

The consumption of alcohol can have beneficial or harmful effects depending on the amount consumed, age and other characteristics of the person consuming the alcohol, and specifics of the situation. In 2002, 55 percent of U.S. adults were current drinkers. Forty-five percent of U.S. adults do not drink any alcohol at all.[15] Abstention is an important option. Fewer Americans consume alcohol today as compared to 50 to 100 years ago.

The hazards of heavy alcohol consumption are well known and include increased risk of liver cirrhosis, hypertension, cancers of the upper gastrointestinal tract, injury, violence, and death. Moreover, certain individuals who are more susceptible to the harmful effects of alcohol should not drink at all. In addition, alcohol should be avoided by those participating in activities that require attention, skill, and/or coordination.

Alcohol may have beneficial effects when consumed in moderation. The lowest all-cause mortality occurs at an intake of one to two drinks per day. The lowest coronary heart disease mortality also occurs at an intake of one to two drinks per day. Morbidity and mortality are highest among those drinking large amounts of alcohol.

KEY RECOMMENDATIONS

- Those who choose to drink alcoholic beverages should do so sensibly and in moderation—defined as the consumption of up to one drink per day for women and up to two drinks per day for men.
- Alcoholic beverages should not be consumed by some individuals, including those who cannot restrict their alcohol intake, women of childbearing age who may become pregnant, pregnant and lactating women, children and adolescents, individuals taking medications that can interact with alcohol, and those with specific medical conditions.
- Alcoholic beverages should be avoided by individuals engaging in activities that require attention, skill, or coordination, such as driving or operating machinery.

Discussion

Alcoholic beverages supply calories but few essential nutrients (see table 16). As a result, excessive alcohol consumption makes it difficult to ingest sufficient nutrients within an

individual's daily calorie allotment and to maintain a healthy weight. Although the consumption of one to two alcoholic beverages per day is not associated with macronutrient or micronutrient deficiencies or with overall dietary quality, heavy drinkers may be at risk of malnutrition if the calories derived from alcohol are substituted for those in nutritious foods.

The majority of American adults consume alcohol. Those who do so should drink alcoholic beverages in moderation. Moderation is defined as the consumption of up to one drink per day for women and up to two drinks per day for men. Twelve fluid ounces of regular beer, 5 fluid ounces of wine, or 1.5 fluid ounces of 80-proof distilled spirits count as one drink for purposes of explaining moderation. This definition of moderation is not intended as an average over several days but rather as the amount consumed on any single day.

The effect of alcohol consumption varies depending on the amount consumed and an individual's characteristics and circumstances. Alcoholic beverages are harmful when consumed in excess. Excess alcohol consumption alters judgment and can lead to dependency or addiction and other serious health problems such as cirrhosis of the liver, inflammation of the pancreas, and damage to the heart and brain. Even less than heavy consumption of alcohol is associated with significant risks. Consuming more than one drink per day for women and two drinks per day for men increases the risk for motor vehicle accidents, other injuries, high blood pressure, stroke, violence, some types of cancer, and suicide. Compared with women who do not drink, women who consume one drink per day appear to have a slightly higher risk of breast cancer.

Studies suggest adverse effects even at moderate alcohol consumption levels in specific situations and individuals. Individuals in some situations should avoid alcohol—those who plan to drive, operate machinery, or take part in other activities that require attention, skill, or coordination. Some people, including children and adolescents, women of childbearing age who may become pregnant, pregnant and lactating women, individuals who cannot restrict alcohol intake, individuals taking medications that can interact with alcohol, and individuals with specific medical conditions should not drink at all. Even moderate drinking during pregnancy may have behavioral or developmental consequences for the baby. Heavy drinking during pregnancy can produce a range of behavioral and psychosocial problems, malformation, and mental retardation in the baby.

Moderate alcohol consumption may have beneficial health effects in some individuals. In middle-aged and older adults, a daily intake of one to two alcoholic beverages per day is associated with the lowest all-cause mortality. More specifically, compared to non-drinkers, adults who consume one to two alcoholic beverages a day appear to have a lower risk of coronary heart disease. In contrast, among younger adults alcohol consumption appears to provide little, if any, health benefit, and alcohol use among young adults is associated with a higher risk of traumatic injury and death. As noted previously, a number of strategies reduce the risk of chronic disease, including a healthful diet, physical activity, avoidance of smoking, and maintenance of a healthy weight. Furthermore, it is not recommended that anyone begin drinking or drink more frequently on the basis of health considerations.

TABLE 16. Calories in Selected Alcoholic Beverages

This table is a guide to estimate the caloric intake from various alcoholic beverages. An

example serving volume and the calories in that drink are shown for beer, wine, and distilled spirits. Higher alcohol content (higher percent alcohol or higher proof) and mixing alcohol with other beverages, such as calorically sweetened soft drinks, tonic water, fruit juice, or cream, increases the amount of calories in the beverage. Alcoholic beverages supply calories but provide few essential nutrients.

Beverage	Approximate Calories Per 1 Fluid Oz[a]	Example Serving Volume	Approximate Total Calories[b]
Beer (regular)	12	12 oz	144
Beer (light)	9	12 oz	108
White wine	20	5 oz	100
Red wine	21	5 oz	105
Sweet dessert wine	47	3 oz	141
80 proof distilled spirits (gin, rum, vodka, whiskey)	64	1.5 oz	96

[a] Source: Agricultural Research Service (ARS) Nutrient Database for Standard Reference (SR), Release 17. (http://www.nal.usda.gov/fnic/foodcomp/index.html) Calories are calculated to the nearest whole number per 1 fluid oz.

[b] The total calories and alcohol content vary depending on the brand. Moreover, adding mixers to an alcoholic beverage can contribute calories in addition to the calories from the alcohol itself.

[15] Behavioral Risk Factor Surveillance System, Surveillance for Certain Health Behaviors Among Selected Local Areas-United States, Behavioral Risk Factor Surveillance System, 2002, MMWR, 53, No SS-05. http://www.cdc.gov/brfss/.

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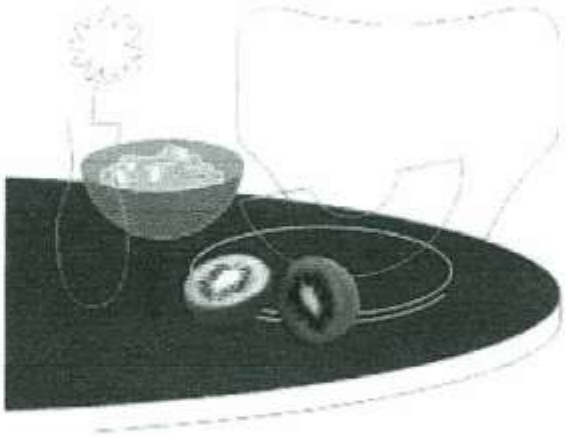
Finding Your Way to a Healthier You:

Based on the
Dietary Guidelines for Americans

U.S. Department of Health and Human Services
U.S. Department of Agriculture
www.healthierus.gov/dietaryguidelines



Feel better today.
Stay healthy for tomorrow.

Here's how: The food and physical activity choices you make every day affect your health—how you feel today, tomorrow, and in the future. The science-based advice of the *Dietary Guidelines for Americans, 2005* in this booklet highlights how to:

- Make smart choices from every food group.
- Find your balance between food and physical activity.
- Get the most nutrition out of your calories.

You may be eating plenty of food, but not eating the right foods that give your body the nutrients you need to be healthy. You may not be getting enough physical activity to stay fit and burn those extra calories. This booklet is a starting point for finding your way to a healthier you.

Eating right and being physically active aren't just a "diet" or a "program"—they are keys to a healthy lifestyle. With healthful habits, you may reduce your risk of many chronic diseases such as heart disease, diabetes, osteoporosis, and certain cancers, and increase your chances for a longer life.

The sooner you start, the better for you, your family, and your future. Find more specific information at www.healthierus.gov/dietaryguidelines.

Make smart choices from every food group.

The best way to give your body the balanced nutrition it needs is by eating a variety of nutrient-packed foods every day. Just be sure to stay within your daily calorie needs.

A healthy eating plan is one that:

- Emphasizes fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products.
- Includes lean meats, poultry, fish, beans, eggs, and nuts.
- Is low in saturated fats, *trans* fats, cholesterol, salt (sodium), and added sugars.

DON'T GIVE IN WHEN YOU EAT OUT AND ARE ON THE GO

It's important to make smart food choices and watch portion sizes wherever you are—at the grocery store, at work, in your favorite restaurant, or running errands. Try these tips:

- At the store, plan ahead by buying a variety of nutrient-rich foods for meals and snacks throughout the week.
- When grabbing lunch, have a sandwich on whole-grain bread and choose low-fat/fat-free milk, water, or other drinks without added sugars.
- In a restaurant, opt for steamed, grilled, or broiled dishes instead of those that are fried or sautéed.
- On a long commute or shopping trip, pack some fresh fruit, cut-up vegetables, string cheese sticks, or a handful of unsalted nuts—to help you avoid impulsive, less healthful snack choices.

Mix up your choices within each food group.

Focus on fruits. Eat a variety of fruits—whether fresh, frozen, canned, or dried—rather than fruit juice for most of your fruit choices. For a 2,000 calorie diet, you will need 2 cups of fruit each day (for example, 1 small banana, 1 large orange, and ¼ cup of dried apricots or peaches).

Vary your veggies. Eat more dark green veggies, such as broccoli, kale, and other dark leafy greens; orange veggies, such as carrots, sweetpotatoes, pumpkin, and winter squash; and beans and peas, such as pinto beans, kidney beans, black beans, garbanzo beans, split peas, and lentils.

Get your calcium-rich foods. Get 3 cups of low-fat or fat-free milk—or an equivalent amount of low-fat yogurt and/or low-fat cheese (1½ ounces of cheese equals 1 cup of milk)—every day. For kids aged 2 to 8, it's 2 cups of milk. If you don't or can't consume milk, choose lactose-free milk products and/or calcium-fortified foods and beverages.

Make half your grains whole. Eat at least 3 ounces of whole-grain cereals, breads, crackers, rice, or pasta every day. One ounce is about 1 slice of bread, 1 cup of breakfast cereal, or ½ cup of cooked rice or pasta. Look to see that grains such as wheat, rice, oats, or corn are referred to as "whole" in the list of ingredients.

Go lean with protein. Choose lean meats and poultry. Bake it, broil it, or grill it. And vary your protein choices—with more fish, beans, peas, nuts, and seeds.

Know the limits on fats, salt, and sugars. Read the Nutrition Facts label on foods. Look for foods low in saturated fats and *trans* fats. Choose and prepare foods and beverages with little salt (sodium) and/or added sugars (caloric sweeteners).

3

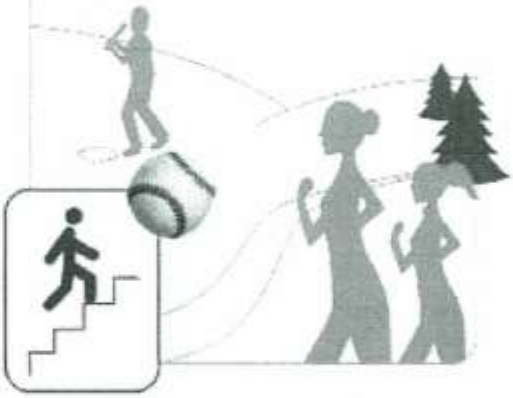
Find your balance between food and physical activity.

Becoming a healthier you isn't just about eating healthy—it's also about physical activity. Regular physical activity is important for your overall health and fitness. It also helps you control body weight by balancing the calories you take in as food with the calories you expend each day.

- Be physically active for at least 30 minutes most days of the week.
- Increasing the intensity or the amount of time that you are physically active can have even greater health benefits and may be needed to control body weight. About 60 minutes a day may be needed to prevent weight gain.
- Children and teenagers should be physically active for 60 minutes every day, or most every day.

CONSIDER THIS:

If you eat 100 more food calories a day than you burn, you'll gain about 1 pound in a month. That's about 10 pounds in a year. The bottom line is that to lose weight, it's important to reduce calories and increase physical activity.



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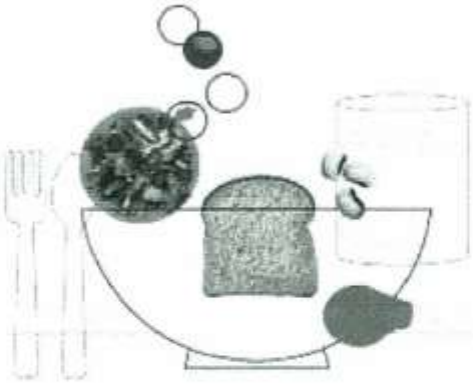


Get the most nutrition out of your calories.

There is a right number of calories for you to eat each day. This number depends on your age, activity level, and whether you're trying to gain, maintain, or lose weight.* You could use up the entire amount on a few high-calorie items, but chances are you won't get the full range of vitamins and nutrients your body needs to be healthy.

Choose the most nutritionally rich foods you can from each food group each day—those packed with vitamins, minerals, fiber, and other nutrients but lower in calories. Pick foods like fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products more often.

* 2,000 calories is the value used as a general reference on the food label. But you can calculate your number at www.healthierus.gov/dietaryguidelines.

NUTRITION:
To know the facts…

Most packaged foods have a Nutrition Facts label. For a healthier you, use this tool to make smart food choices quickly and easily. Try these tips:

- Keep these low: saturated fats, *trans* fats, cholesterol, and sodium.
- Get enough of these: potassium, fiber, vitamins A and C, calcium, and iron.
- Use the % Daily Value (DV) column when possible: 5% DV or less is low, 20% DV or more is high.

Check servings and calories. Look at the serving size and how many servings you are actually consuming. If you double the servings you eat, you double the calories and nutrients, including the % DVs.

Make your calories count. Look at the calories on the label and compare them with what nutrients you are also getting to decide whether the food is worth eating. When one serving of a single food item has over 400 calories per serving, it is high in calories.

Don't sugarcoat it. Since sugars contribute calories with few, if any, nutrients, look for foods and beverages low in added sugars. Read the ingredient list and make sure that added sugars are not one of the first few ingredients. Some names for added sugars (caloric sweeteners) include sucrose, glucose, high fructose corn syrup, corn syrup, maple syrup, and fructose.

Know your fats. Look for foods low in saturated fats, *trans* fats, and cholesterol to help reduce the risk of heart disease (5% DV or less is low, 20% DV or more is high). Most of the fats you eat should be polyunsaturated and monounsaturated fats. Keep total fat intake between 20% to 35% of calories.

Reduce sodium (salt), increase potassium. Research shows that eating less than 2,300 milligrams of sodium (about 1 tsp of salt) per day may reduce the risk of high blood pressure. Most of the sodium people eat comes from processed foods, not from the saltshaker. Also look for foods high in potassium, which counteracts some of sodium's effects on blood pressure.

…use the label.

7

Play it safe with food.

Know how to prepare, handle, and store food safely to keep you and your family safe:

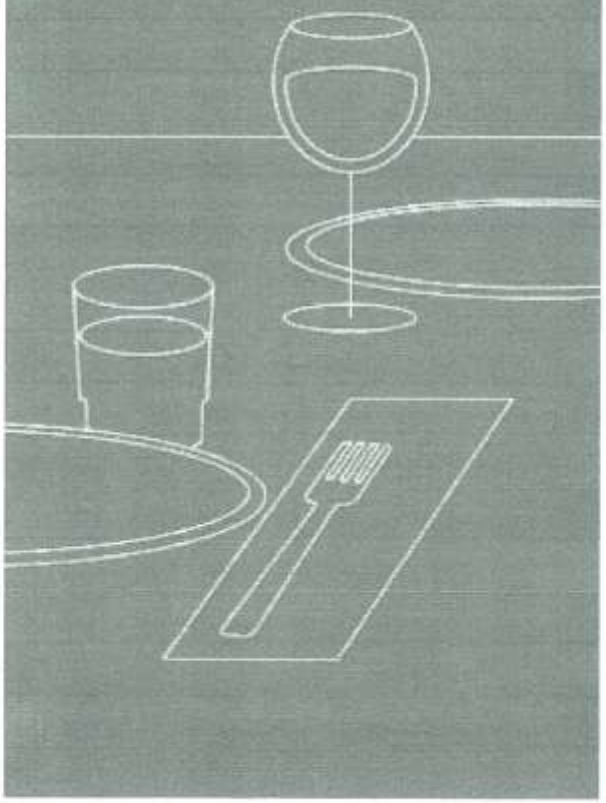
- Clean hands, food-contact surfaces, fruits, and vegetables. To avoid spreading bacteria to other foods, meat and poultry should *not* be washed or rinsed.
- Separate raw, cooked, and ready-to-eat foods while shopping, preparing, or storing.
- Cook meat, poultry, and fish to safe internal temperatures to kill microorganisms.
- Chill perishable foods promptly and thaw foods properly.

8

About alcohol.

If you choose to drink alcohol, do so in moderation. Moderate drinking means up to 1 drink a day for women and up to 2 drinks for men. Twelve ounces of regular beer, 5 ounces of wine, or 1½ ounces of 80-proof distilled spirits count as a drink for purposes of explaining moderation. Remember that alcoholic beverages have calories but are low in nutritional value.

Generally, anything more than moderate drinking can be harmful to your health. And some people, or people in certain situations, shouldn't drink at all. If you have questions or concerns, talk to your doctor or healthcare provider.



These are the basic guidelines for eating a healthy diet and being physically active. For more information about the food groups and nutrition values, or to pick up some new ideas on physical activity, go to www.healthierus.gov/dietaryguidelines.

This booklet, as well as *Dietary Guidelines for Americans, 2005, 6th Edition*, may be viewed and downloaded from the Internet at www.healthierus.gov/dietaryguidelines.

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Extension System

Newsline

Childhood Obesity

There is an epidemic of childhood obesity in the United States and throughout the world. Experts estimate one in five children between the ages of 6 and 17 are overweight. Millions of these children face a higher risk much earlier in life of developing obesity-related disorders, such as diabetes and heart disease.

Studies have shown obese children have an exceptionally hard time losing weight and following through with lifestyle changes in adulthood when their health, and even their lives, may depend on them – all the more reason why parents should encourage kids to remain physically active throughout childhood.

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"High-Calorie Drinks Contributing to Childhood Obesity, Expert Says"

"Asian Obesity Levels Catch Up with West"

"Eating: A Life or Death Decision for Many Young Black Males"

"Experts Say, 'It's the Sugar, Stupid'"

Extension Contacts

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Solving Childhood Obesity Won't Be Easy, Expert Says

AUBURN, JAN. 10---Childhood obesity has reached epidemic proportions in the United States and Canada. While the problem is easily understood, it will not be as easily solved, says one expert.

"The causes of childhood obesity are not difficult to understand," says Dr. Bob Keith, an Alabama Cooperative Extension System nutritionist. "Basically we have two things going against kids: a plentiful supply of food, which often tends to be high in calories and full of fat and sugar, and a lack of physical activity."

While the wide access to high-caloric

Streaming Presentations

Interview with Dr. Robert Keith, **Extension nutritionist, on the childhood obesity epidemic.**

Dr. Keith discusses the roots of this obesity and the role parents can play in reversing this trend.

FAQs and Fact Sheets

Childhood Obesity **(American Obesity Association)**

Childhood Obesity **on the Rise (National Institutes of Health)**

Evaluation and Treatment of Childhood Obesity **(American Academy of Family Physicians)**

Obesity **(Pediatric On Call)**

Childhood Obesity Resource List **(National Agricultural Library/USDA)**

Childhood Obesity Fact Sheet **(Colorado State University Cooperative Extension System)**

The Perils of Childhood Obesity **(Fact Sheet from the University of Kentucky Cooperative Extension Service)**

Childhood Obesity **(Special Issues Page from the Oklahoma Cooperative Extension Service)**

Weight Control and Obesity Topic Page **(USDA's Food and Nutrition Center)**

Childhood Obesity, Disease and Health Information **(Pennsylvania State University Children's Hospital)**

Childhood Obesity: Causes and Prevention **The Proceedings of a Symposium, Sponsored by the USDA's Center for Nutrition Policy and Promotion**

Childhood and Adolescent Obesity (athealth.com)

food is a serious enough problem, Keith believes the second factor -- lack of physical activity -- contributes significantly to obesity in young people.

The problem of physical inactivity among young people, noted by experts as far back as 20 years ago, has spiked within the last decade – a factor Keith attributes to the ever-increasing availability of visual media.

"Since about 1980, computers and video games have just boomed," he says. "Coupled with that is the explosion of cable-television channels, which offer kids more viewing selections than ever before," he says.

The result is a generation of children who are turning to visual media for the stimulation that earlier generations derived from physical activities such as touch football or basketball.

"I often think about how different things were 20 years ago when kids were outside playing sports and burning calories instead of sitting inside playing sports video games on the computer," he says. "What you have is a generation that has to make an effort to be physically active. Unless they think about it, they can go an entire day without being physically active."

Another complicating factor is the number of schools that have phased out mandatory physical education after the middle-school years.

The end result, Keith says, is a rising generation of young people prone to the diseases that affected earlier, more physically active generations much later in life: hypertension, cardiovascular disease and adult-onset diabetes.

Unfortunately, he says, the solutions won't be easy, and the problem is likely to get worse.

"You can't take away computers, because they've now become an integral part of their lifestyle," he says. "Kids are going to play video games and watch all of these television programs despite all of our best efforts."

Childhood Obesity **(New South Wales Health, Australia)**

Childhood Obesity **(Parliamentary Office of Science and Technlogy, United Kingdom)**

Childhood Obesity: Modernity's Scourge **(Medical Journal of Australia)**

Childhood Obesity in the News

Obesity Rising in Children

Report on Childhood Obesity

Fatter Parents, Fatter Kids: Childhood Obesity is a Hefty Problem

Warning: too tubby tots face lifetime of obesity

Defeating Childhood Obesity

Childhood obesity soars in UK

Europe's Generation of Obese Children

Childhood Obesity:
Managing Your Child's Food Environment

Childhood Obesity: A Big Problem

Childhood Obesity A Serious Problem

Plan to tackle childhood obesity

As Keith sees it, part of the solution should involve re-introducing mandatory physical activities in the public schools, especially in middle schools and high schools.

Moreover, parents can take a more proactive role encouraging their kids to remain active -- even taking part in physical activity with them in some instances.

Parents even can develop creative ways to help their children become more physically active.

"It doesn't have to be as structured as sports, but it has to be something that keeps you moving and burning calories, such as bicycling, walking and gardening."

Studies have shown obese children have an exceptionally hard time losing weight and following through with lifestyle changes in adulthood when their health, and even their lives, may depend on them -- all the more reason why parents should encourage kids to remain physically active throughout childhood, Keith says.

(Dr. Robert Keith, Alabama Cooperative Extension Nutritionist, 334-844-3273)

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Childhood Overweight and Obesity

Obesity is a serious health concern for children and adolescents. Data from NHANES surveys (1976–1980 and 2003–2006) show that the prevalence of obesity has increased: for children aged 2–5 years, prevalence increased from 5.0% to 12.4%; for those aged 6–11 years, prevalence increased from 6.5% to 17.0%; and for those aged 12–19 years, prevalence increased from 5.0% to 17.6%.[1, 46]

Obese children and adolescents are at risk for health problems during their youth and as adults. For example, during their youth, obese children and adolescents are more likely to have risk factors associated with cardiovascular disease (such as high blood pressure, high cholesterol, and Type 2 diabetes) than are other children and adolescents.[2]

Obese children and adolescents are more likely to become obese as adults.[3, 4] For example, one study found that approximately 80% of children who were overweight at aged 10–15 years were obese adults at age 25 years.[3] Another study found that 25% of obese adults were overweight as children.[5] The latter study also found that if overweight begins before 8 years of age, obesity in adulthood is likely to be more severe.

This Web site provides information about childhood overweight and obesity, including how overweight and obesity are defined for children, the prevalence of obesity, the factors associated with obesity, and the related health consequences.

Tips for Parents

What can you do as a parent or guardian to help prevent childhood overweight and obesity? We have some ideas in our Healthy Weight section.

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Contributing Factors

At the individual level, childhood obesity is the result of an imbalance between the calories a child consumes as food and beverages and the calories a child uses to support normal growth and development, metabolism, and physical activity. In other words, obesity results when a child consumes more calories than the child uses. The imbalance between calories consumed and calories used can result from the influences and interactions of a number of factors, including genetic, behavioral, and environmental factors.[10] It is the interactions among these factors – rather than any single factor – that is thought to cause obesity.[11]

Genetic Factors

Studies indicate that certain genetic characteristics may increase an individual's susceptibility to excess body weight.[12, 13] However, this genetic susceptibility may need to exist in conjunction with contributing environmental and behavioral factors (such as a high-calorie food supply and minimal physical activity) to have a significant effect on weight. Genetic factors alone can play a role in specific cases of obesity . For example, obesity is a clinical feature for rare genetic disorders such as Prader-Willi syndrome.[14] However, the rapid rise in the rates of overweight and obesity in the general population in recent years cannot be attributed solely to genetic factors. The genetic characteristics of the human population have not changed in the last three decades, but the prevalence of obesity has tripled among school-aged children during that time.[8, 46]

Behavioral Factors

Because the factors that contribute to childhood obesity interact with each other, it is not possible to specify one behavior as the "cause" of obesity . However, certain behaviors can be identified as potentially contributing to an energy imbalance and, consequently, to obesity .

Energy intake: Evidence is limited on specific foods or dietary patterns that contribute to excessive energy intake in children and teens. However, large portion sizes for food and beverages, eating meals away from home, frequent snacking on energy-dense foods and consuming beverages with added sugar are often hypothesized as contributing to excess energy intake of children and teens.[15] In the area of consuming sugar-sweetened drinks, evidence is growing to suggest an association with weight gain in children and adolescents.[16, 17, 18] Consuming sugar-sweetened drinks may be associated with obesity because these drinks are high in calories.[19] Children may not compensate at meals for the calories they have consumed in sugar-sweetened drinks, although this may vary by age.[20, 21] Also, liquid forms of energy may be less satiating than solid forms and lead to higher caloric intake.[22, 23]

Physical activity: Participating in physical activity is important for children and teens

as it may have beneficial effects not only on body weight, but also on blood pressure and bone strength.[24] Physically active children are also more likely to remain physically active throughout adolescence and possibly into adulthood.[25]

Children may be spending less time engaged in physical activity during school. Daily participation in school physical education among adolescents dropped 14 percentage points over the last 13 years — from 42% in 1991 to 28% in 2003.26 In addition, less than one-third (28%) of high school students meet currently recommended levels of physical activity.[27]

Sedentary behavior: Children spend a considerable amount of time with media. One study found that time spent watching TV, videos, DVDs, and movies averaged slightly over 3 hours per day among children aged 8–18 years.28 Several studies have found a positive association between the time spent viewing television and increased prevalence of obesity in children.[29, 30, 31] Media use, and specifically television viewing, may

- displace time children spend in physical activities,[32, 33]
- contribute to increased energy consumption through excessive snacking and eating meals in front of the TV,[34, 35]
- influence children to make unhealthy food choices through exposure to food advertisements,[15] and
- lower children's metabolic rate.[36]

Environmental Factors

Home, child care, school, and community environments can influence children's behaviors related to food intake and physical activity.[15]

Within the home: Parent-child interactions and the home environment can affect the behaviors of children and youth related to calorie intake and physical activity. Parents are role models for their children who are likely to develop habits similar to their parents.[15]

Within child care: Almost 80% of children aged 5 years and younger with working mothers are in child care for 40 hours a week on average.[37] Child care providers are sharing responsibility with parents for children during important developmental years. Child care can be a setting in which healthy eating and physical activity habits are developed.

Within schools: Because the majority of young people aged 5–17 years are enrolled in schools and because of the amount of time that children spend at school each day, schools provide an ideal setting for teaching children and teens to adopt healthy eating and physical activity behaviors. According to the Institute of Medicine (IOM), schools and school districts are, increasingly, implementing innovative programs that focus on improving the nutrition and increasing physical activity of students.[15]

Within the community: The built environment within communities influences access to physical activity opportunities and access to affordable and healthy foods. For example, a lack of sidewalks, safe bike paths, and parks in neighborhoods can discourage children from walking or biking to school as well as from participating in physical activity.[15] Additionally, lack of access to affordable, healthy food choices in neighborhood food markets can be a barrier to purchasing healthy foods.[38]

Tips for Parents

What can you do as a parent or guardian to help prevent childhood overweight? We have some ideas in our Healthy Weight section.

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no. 9.317

Childhood Overweight

by L. Bellows and J. Roach[1] (05/09)

Quick Facts...

- Overweight children have an increased risk of being overweight as adults.
- Genetics, behavior, and family environment play a role in childhood overweight.
- Childhood overweight increases the risk for certain medical and psychological conditions.
- Encourage overweight children to be active, decrease screen time, and develop healthful eating habits.

The prevalence of overweight children in the United States has increased dramatically in recent years. Recent reports have reached epidemic levels, with approximately 16 percent of children, 2 to 19 years old, classified as overweight.[2] Colorado fares slightly better with close to 14 percent of children considered overweight; however, the same increasing trend seen nationally is occurring in Colorado as well.[3] Excess weight has both immediate and long-term consequences and the current issue demands serious attention.

Definitions

Body Mass Index (BMI) is a measure of weight adjusted for height used to determine weight categories. Due to children's changing body compositions over time and the different growth rates of boys and girls, BMI for children is age and gender specific. BMI for age is determined using gender-specific growth charts that place a child in a percentile relative to weight and height. Weight categories are determined based on these percentiles and are defined as:

Underweight < 5th percentile
Normal 5th to < 85th percentile
At risk of overweight 85th to <95th percentile
Overweight 95th percentile and above

The terms obese and overweight are often used interchangeably, although the terms at risk of overweight and overweight are preferred to reference children whose excess body weight poses medical risks.

Consequences of Childhood Overweight

Overweight children and adolescents are at increased risk for several health complications. During their youth, for example, they are more likely to exhibit risk factors for cardiovascular disease (CVD) including high blood pressure, high cholesterol, dyslipidemia, and type 2 diabetes compared with normal weight individuals.[4] Additional health complications associated with overweight children include sleep apnea, asthma, and liver damage.[4] Further, overweight children and adolescents are more likely to become obese adults. For example, one study found that approximately 80 percent of children who were overweight at 10 to 15 years old were obese at 25.[4] Another study found that 25 percent of obese adults were overweight as children.[4] This study also concluded that if overweight begins before 8 years of age, obesity in adulthood is likely to be more severe. Finally, childhood overweight has psychological and emotional consequences. Overweight children are at an increased risk of teasing and bullying, low self-esteem, and poor body image.

Contributors of Childhood Overweight

There is not one single cause of childhood overweight, rather it is a complex interaction of many variables. Contributing factors include genetics, behavior, environment, and certain socio-demographics.

Genetics. Certain genetic characteristics may increase an individual's susceptibility to excess body weight, however, there are likely to be many genes involved and a strong interaction between genetics and environment that influences the degree of excess body weight.[5] It has been shown that overweight tends to run in families suggesting a genetic link. In some cases, parental obesity is a stronger predictor of childhood overweight than the child's weight status alone.[5]

Behavior. Weight gain occurs as a result of energy imbalance, specifically when a child consumes more calories than the child uses. Several behaviors can contribute to weight gain including nutrition, physical activity, and sedentary behaviors.

- *Nutrition* - An increase in availability and consumption of high-calorie convenience foods and beverages, more meals eaten away from home, fewer family meals, and greater portion sizes all may contribute to childhood overweight. Further, many children's diets do not meet nutrition guidelines. For example, only 8 percent of children in Colorado ate vegetables three or more times per day as recommended by the U.S. Department of Agriculture.[3, 6]
- *Physical Activity* - Decreased opportunities and participation in physical activity is another behavior that contributes to overweight children. Being physically active not only has positive effects on body weight, but also on blood pressure and bone strength.[7] It also has been shown that physically active children are more likely to remain physically active into adolescence and adulthood.[7] Children may spend less time being physically active during school as well as at home. School physical education programs have decreased and children are walking to school and doing household chores less frequently.
- *Screen Time* - While physical activity levels have decreased, sedentary behaviors, such as watching television, playing on the computer and with video games have increased. One study found that time spent watching television, videos, DVDs, and movies averaged slightly over three hours per day among children 8 to 18 years old.[6] Several studies have found a positive association between time spent watching television and prevalence of overweight in children. Sedentary behavior, and specifically television viewing, may replace time children spend in physical activities, contribute to increased calorie consumption through excessive snacking and eating meals in front of the television, influence children to choose high-calorie, low-nutrient foods through exposure to food advertisements, and decrease children's metabolic rate.[6]

Environment. There are a variety of environmental factors that can potentially contribute to childhood overweight, including home, childcare settings, school, and the community. The school and community settings are other environments where children learn about eating and physical activity habits. It is becoming increasingly important for all children to have access to healthful food choices and safe physical activity opportunities. Advocating for innovative school nutrition and physical activity programs as well as ensuring that there are well-lit sidewalks, bike paths, and parks in the community can all help to shift towards a more healthful environment for our children.

Socio-Demographics. Certain ethnic minority and socioeconomic populations have increased rates of childhood overweight.[8] Low-income families face numerous barriers including food insecurity, lack of safe places for physical activity,

and lack of consistent access to healthful food choices, especially fruits and vegetables.[5] Recent reports also indicate racial disparities, with the greatest prevalence among Mexican American boys and African American non-Hispanic girls.[2] With both sexes combined, roughly 21 percent of both Mexican Americans and African American non-Hispanics are overweight compared to close to 15 percent for white non-Hispanic.[2]

Promoting Healthy Habits and a Healthy Weight

Lifestyles and behaviors are established early in life; therefore, a focus on healthful behaviors is vital to promoting healthy weight. The primary goals of overcoming childhood overweight should be healthful eating and increased activity. It is important for children to consume enough calories to support normal growth and development without promoting excessive weight gain. The home, childcare setting, school, and community are all integral to a more healthful environment for our children.

Parents, caregivers, teachers, and community members can promote healthy nutrition and physical activity habits and a healthy weight among children by:

Encouraging Healthy Eating Habits

- Serve a wide variety of foods, including fruits, vegetables, whole grains, and low-fat dairy products. Provide children with a variety of foods to ensure they get all the nutrients they need for proper growth and development.
- Know how much food kids need. Keep portion sizes in check to help children maintain their sense of self-regulation –and to know when they are hungry and when they are full.
- Be a good role model for kids by eating together. Eating meals as a family has been shown to increase fruit and vegetable consumption and decrease the amount of junk foods and sugar-sweetened beverages.
- Visit USDA's MyPyramid website (www.mypyramid.gov) for information and tips for eating healthfully.[6]

Promoting Physical Activity

- Aim for children to accumulate a minimum of 60 minutes of moderate-to-vigorous physical activity each day. Activity bouts can be all at once or in several bouts spread throughout the day.
- Increase opportunities for children to engage in physical activity throughout the day. Incorporating daily recess and physical education into the school day will help ensure that children are getting the recommended 60 minutes of physical activity each day.
- Be a good role model. Engage in activity with children.
- Limit screen and television time to less than two hours per day. Keep televisions and video games out of children's bedrooms to help them limit the amount of screen time.
- Visit the National Institutes of Health's WeCan™ (Ways to Enhance Children's Activity and Nutrition) website (www.wecan.org) for ideas on increasing physical activity, decreasing screen time, and improving food choices among children.[9]

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Health Risks, Diagnosis and Treatment

Determining if a child or adolescent has a weight problem can be challenging. How do you know if the excess weight your child has is part of the natural growth process, and will your child just "grow out of?" How do you know if your child's weight may be negatively affecting his or her health?

Health Risks

Along with the rise in childhood obesity, there has been an increase in the incidence and prevalence of medical conditions in children and adolescents that had been rare in the past. Pediatricians and childhood obesity researchers are reporting more frequent cases of obesity-related diseases such as type 2 diabetes, asthma and hypertension that once were considered adult conditions.

- Read more about obesity-related health risks for children and adolescents in the AOA Fact Sheet, *Obesity in Youth*.
- Read about the relationship of obesity and type 2 diabetes in children at the CDC's *Children and Diabetes* web page.

MyPyramid

MyPyramid.gov
STEPS TO A HEALTHIER YOU

MyPyramid replaces the Food Guide Pyramid introduced in 1992. MyPyramid is part of an overall food guidance system that emphasizes the need for a more individualized approach to improving diet and lifestyle. It incorporates recommendations from the Dietary Guidelines for Americans 2005 Web site (link below), released by the US Department of Agriculture and US Department of Health and Human Services in January 2005.

The MyPyramid symbol represents the recommended proportion of foods from each food group and focuses on the importance of making smart food choices in every food group, every day. Physical activity is a new element in the symbol.

The new food guidance system utilizes interactive technology found on the USDA MyPyramid Web site (link below). The interactive activities make it easy for individuals to enter their age, gender and physical activity level to obtain a more personalized recommendation on their daily calorie level based on the Dietary Guidelines for Americans 2005. The Web site features MyPyramid Plan, MyPryamid Tracker and Inside MyPyramid, plus tips, resources and a worksheet.

http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/nutrition_fgp_ENU_HTML.htm

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Emergency Preparedness and Response

Extreme Heat: A Prevention Guide to Promote Your Personal Health and Safety

HIGHLIGHTS

Elderly people (65 years and older), infants and children and people with chronic medical conditions are more prone to heat stress.

Air-conditioning is the number one protective factor against heat-related illness and death. During conditions of extreme heat, spend time in locations with air-conditioning such as shopping malls, public libraries, or public health sponsored heat-relief shelters in your area.

Get informed. Listen to local news and weather channels or contact your local public health department during extreme heat conditions for health and safety updates.

Drink cool, nonalcoholic beverages and increase your fluid intake, regardless of your activity level.

Heat-related deaths and illness are preventable yet annually many people succumb to extreme heat. Historically, from 1979-2003, excessive heat exposure caused 8,015 deaths in the United States. During this period, more people in this country died from extreme heat than from hurricanes, lightning, tornadoes, floods, and earthquakes combined. In 2001, 300 deaths were caused by excessive heat exposure.

People suffer heat-related illness when their bodies are unable to compensate and properly cool themselves. The body normally cools itself by sweating. But under some conditions, sweating just isn't enough. In such cases, a person's body temperature rises rapidly. Very high body temperatures may damage the brain or other vital organs.

Several factors affect the body's ability to cool itself during extremely hot weather. When the humidity is high, sweat will not evaporate as quickly, preventing the body from releasing heat quickly. Other conditions related to risk include age, obesity, fever, dehydration, heart disease, mental illness, poor circulation, sunburn, and prescription drug and alcohol use.

Because heat-related deaths are preventable, people need to be aware of who is at greatest risk and what actions can be taken to prevent a heat-related illness or death. The elderly, the very young, and people with mental illness and chronic diseases are at highest risk. However, even young and healthy individuals can succumb to heat if they participate in strenuous physical activities during hot weather. Air-conditioning is the number one protective factor against heat-related illness and death. If a home is not air-conditioned, people can reduce their risk for heat-related illness by spending time in public facilities that are air-conditioned.

Summertime activity, whether on the playing field or the construction site, must be balanced with measures that aid the body's cooling mechanisms and prevent heat-related illness. This pamphlet tells how you can prevent, recognize, and cope with heat-related health problems.

What Is Extreme Heat?

Conditions of extreme heat are defined as summertime temperatures that are substantially hotter and/or more humid than average for location at that time of year. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a "dome" of high atmospheric pressure traps hazy, damp air near the ground. Extremely dry and hot conditions can provoke dust storms and low visibility. Droughts occur when a long period passes without substantial rainfall. A heat wave combined with a drought is a very dangerous situation.

During Hot Weather

To protect your health when temperatures are extremely high, remember to keep cool and use common sense. The following tips are important:

Drink Plenty of Fluids

During hot weather you will need to increase your fluid intake, regardless of your activity level. Don't wait until you're thirsty to drink. During heavy exercise in a hot environment, drink two to four glasses (16-32 ounces) of cool fluids each hour.

Warning: If your doctor generally limits the amount of fluid you drink or has you on water pills, ask how much you should drink while the weather is hot.

Don't drink liquids that contain alcohol, or large amounts of sugar—these actually cause you to lose more body fluid. Also avoid very cold drinks, because they can cause stomach cramps.

Replace Salt and Minerals

Heavy sweating removes salt and minerals from the body. These are necessary for your body and must be replaced. If you must exercise, drink two to four glasses of cool, non-alcoholic fluids each hour. A sports beverage can replace the salt and minerals you lose in sweat. However, if you are on a low-salt diet, talk with your doctor before drinking a sports beverage or taking salt tablets.

Wear Appropriate Clothing and Sunscreen

Wear as little clothing as possible when you are at home. Choose lightweight, light-colored, loose-fitting clothing. Sunburn affects your body's ability to cool itself and causes a loss of body fluids. It also causes pain and damages the skin. If you must go outdoors, protect yourself from the sun by wearing a wide-brimmed hat (also keeps you cooler) along with sunglasses, and by putting on sunscreen of SPF 15 or higher (the most effective products say "broad spectrum" or "UVA/UVB protection" on their labels) 30 minutes prior to going out. Continue to reapply it according to the package directions.

Schedule Outdoor Activities Carefully

If you must be outdoors, try to limit your outdoor activity to morning and evening hours. Try to rest often in shady areas so that your body's thermostat will have a chance to recover.

Pace Yourself

If you are not accustomed to working or exercising in a hot environment, start slowly and pick up the pace gradually. If exertion in the heat makes your heart pound and leaves you gasping for breath, STOP all activity. Get into a cool area or at least into the shade, and rest, especially if you become lightheaded, confused, weak, or faint.

Stay Cool Indoors

Stay indoors and, if at all possible, stay in an air-conditioned place. If your home does not have air conditioning, go to the shopping mall or public library—even a few hours spent in air conditioning can help your body stay cooler when you go back into the heat. Call your local health department to see if there are any heat-relief shelters in your area. Electric fans may provide comfort, but when the temperature is in the high 90s, fans will not prevent heat-related illness. Taking a cool shower or bath or moving to an air-conditioned place is a much better way to cool off. Use your stove and oven less to maintain a cooler temperature in your home.

Use a Buddy System

When working in the heat, monitor the condition of your co-workers and have someone do the same for you. Heat-induced illness can cause a person to become confused or lose consciousness. If you are 65 years of age or older, have a friend or relative call to check on you twice a day during a heat wave. If you know someone in this age group, check on them at least twice a day.

Monitor Those at High Risk

Although anyone at any time can suffer from heat-related illness, some people are at greater risk than others.

- Infants and young children are sensitive to the effects of high temperatures and rely on others to regulate their environments and provide adequate liquids.
- People 65 years of age or older may not compensate for heat stress efficiently and are less likely to sense and respond to change in temperature.
- People who are overweight may be prone to heat sickness because of their tendency to retain more body heat.
- People who overexert during work or exercise may become dehydrated and susceptible to heat sickness.

- People who are physically ill, especially with heart disease or high blood pressure, or who take certain medications, such as for depression, insomnia, or poor circulation, may be affected by extreme heat.

Visit adults at risk at least twice a day and closely watch them for signs of heat exhaustion or heat stroke. Infants and young children, of course, need much more frequent watching.

Adjust to the Environment

Be aware that any sudden change in temperature, such as an early summer heat wave, will be stressful to your body. You will have a greater tolerance for heat if you limit your physical activity until you become accustomed to the heat. If you travel to a hotter climate, allow several days to become acclimated before attempting any vigorous exercise, and work up to it gradually.

Do Not Leave Children in Cars

Even in cool temperatures, cars can heat up to dangerous temperatures very quickly. Even with the windows cracked open, interior temperatures can rise almost 20 degrees Fahrenheit within the first 10 minutes. Anyone left inside is at risk for serious heat-related illnesses or even death. Children who are left unattended in parked cars are at greatest risk for heat stroke, and possibly death. When traveling with children, remember to do the following:

- Never leave infants, children or pets in a parked car, even if the windows are cracked open.
- To remind yourself that a child is in the car, keep a stuffed animal in the car seat. When the child is buckled in, place the stuffed animal in the front with the driver.
- When leaving your car, check to be sure everyone is out of the car. Do not overlook any children who have fallen asleep in the car.

Use Common Sense

Remember to keep cool and use common sense:

- Avoid hot foods and heavy meals—they add heat to your body.
- Drink plenty of fluids and replace salts and minerals in your body. Do not take salt tablets unless under medical supervision.
- Dress infants and children in cool, loose clothing and shade their heads and faces with hats or an umbrella.
- Limit sun exposure during mid-day hours and in places of potential severe exposure such as beaches.
- Do not leave infants, children, or pets in a parked car.
- Provide plenty of fresh water for your pets, and leave the water in a shady area.

Hot Weather Health Emergencies

Even short periods of high temperatures can cause serious health problems. During hot weather health emergencies, keep informed by listening to local weather and news channels or contact local health departments for health and safety updates. Doing too much on a hot day, spending too much time in the sun or staying too long in an overheated place can cause heat-related illnesses. Know the symptoms of heat disorders and overexposure to the sun, and be ready to give first aid treatment.

Heat Stroke

Heat stroke occurs when the body is unable to regulate its temperature. The body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. Body temperature may rise to 106°F or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not provided.

Recognizing Heat Stroke

Warning signs of heat stroke vary but may include the following:

- An extremely high body temperature (above 103°F, orally)
- Red, hot, and dry skin (no sweating)
- Rapid, strong pulse
- Throbbing headache
- Dizziness
- Nausea
- Confusion
- Unconsciousness

What to Do

If you see any of these signs, you may be dealing with a life-threatening emergency. Have someone call for immediate medical assistance while you begin cooling the victim. Do the following:

- Get the victim to a shady area.
- Cool the victim rapidly using whatever methods you can. For example, immerse the victim in a tub of cool water; place the person in a cool shower; spray the victim with cool water from a garden hose; sponge the person with cool water; or if the humidity is low, wrap the victim in a cool, wet sheet and fan him or her vigorously.
- Monitor body temperature, and continue cooling efforts until the body temperature drops to 101-102°F.
- If emergency medical personnel are delayed, call the hospital emergency room for further instructions.
- Do not give the victim fluids to drink.
- Get medical assistance as soon as possible.

Sometimes a victim's muscles will begin to twitch uncontrollably as a result of heat stroke. If this happens, keep the victim from injuring himself, but do not place any object in the mouth and do not give fluids. If there is vomiting, make sure the airway remains open by turning the victim on his or her side.

Heat Exhaustion

Heat exhaustion is a milder form of heat-related illness that can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids. It is the body's response to an excessive loss of the water and salt contained in sweat. Those most prone to heat exhaustion are elderly people, people with high blood pressure, and people working or exercising in a hot environment.

Recognizing Heat Exhaustion

Warning signs of heat exhaustion include the following:

- Heavy sweating
- Paleness
- Muscle cramps
- Tiredness
- Weakness
- Dizziness
- Headache
- Nausea or vomiting
- Fainting

The skin may be cool and moist. The victim's pulse rate will be fast and weak, and breathing will be fast and shallow. If heat exhaustion is untreated, it may progress to heat stroke. Seek medical attention immediately if any of the following occurs:

- Symptoms are severe
- The victim has heart problems or high blood pressure

Otherwise, help the victim to cool off, and seek medical attention if symptoms worsen or last longer than 1 hour.

What to Do

Cooling measures that may be effective include the following:

- Cool, nonalcoholic beverages
- Rest
- Cool shower, bath, or sponge bath
- An air-conditioned environment
- Lightweight clothing

Heat Cramps

Heat cramps usually affect people who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture. The low salt level in the muscles may be the cause of heat cramps. Heat cramps may also be a symptom of heat exhaustion.

Recognizing Heat Cramps

Heat cramps are muscle pains or spasms—usually in the abdomen, arms, or legs—that may occur in association with strenuous activity. If you have heart

problems or are on a low-sodium diet, get medical attention for heat cramps.

What to Do

If medical attention is not necessary, take these steps:

- Stop all activity, and sit quietly in a cool place.
- Drink clear juice or a sports beverage.
- Do not return to strenuous activity for a few hours after the cramps subside, because further exertion may lead to heat exhaustion or heat stroke.
- Seek medical attention for heat cramps if they do not subside in 1 hour.

Sunburn

Sunburn should be avoided because it damages the skin. Although the discomfort is usually minor and healing often occurs in about a week, a more severe sunburn may require medical attention.

Recognizing Sunburn

Symptoms of sunburn are well known: the skin becomes red, painful, and abnormally warm after sun exposure.

What to Do

Consult a doctor if the sunburn affects an infant younger than 1 year of age or if these symptoms are present:

- Fever
- Fluid-filled blisters
- Severe pain

Also, remember these tips when treating sunburn:

- Avoid repeated sun exposure.
- Apply cold compresses or immerse the sunburned area in cool water.
- Apply moisturizing lotion to affected areas. Do not use salve, butter, or ointment.
- Do not break blisters.

Heat Rash

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather. It can occur at any age but is most common in young children.

Recognizing Heat Rash

Heat rash looks like a red cluster of pimples or small blisters. It is more likely to occur on the neck and upper chest, in the groin, under the breasts, and in elbow creases.

What to Do

The best treatment for heat rash is to provide a cooler, less humid environment. Keep the affected area dry. Dusting powder may be used to increase comfort.

Treating heat rash is simple and usually does not require medical assistance. Other heat-related problems can be much more severe.

This information provided by NCEH's Health Studies Branch (http://www.cdc.gov/nceh/hsb/).

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Fetal Alcohol Spectrum Disorders (FASDs)

Alcohol Use in Pregnancy

There is no known safe amount of alcohol to drink while pregnant. There is also no safe time during pregnancy to drink and no safe kind of alcohol. **CDC urges pregnant women not to drink alcohol any time during pregnancy.**

Women also should not drink alcohol if they are planning to become pregnant or are sexually active and do not use effective birth control. This is because a woman could become pregnant and not know for several weeks or more. In the United States half of all pregnancies are unplanned.

FASDs are 100% preventable. If a woman doesn't drink alcohol while she is pregnant, her child cannot have an FASD.

Why Alcohol is Dangerous

When a pregnant woman drinks alcohol, so does her unborn baby. Alcohol in the mother's blood passes through the placenta to the baby through the umbilical cord. Drinking alcohol during pregnancy can cause miscarriage, stillbirth, and a range of lifelong disorders, known as fetal alcohol spectrum disorders (FASDs). Children with FASDs might have the following characteristics and behaviors:

- Abnormal facial features, such as a smooth ridge between the nose and upper lip (this ridge is called the philtrum)
- Small head size
- Shorter-than-average height
- Low body weight
- Poor coordination
- Hyperactive behavior
- Difficulty paying attention
- Poor memory
- Difficulty in school (especially with math)
- Learning disabilities
- Speech and language delays
- Intellectual disability or low IQ
- Poor reasoning and judgment skills
- Sleep and sucking problems as a baby
- Vision or hearing problems
- Problems with the heart, kidney, or bones

Learn more about FASDs » (/ncbddd/fasd/facts.html)

How Much Alcohol is Dangerous

There is no known safe amount of alcohol to drink while pregnant.

Surgeon General's Advisory Download

When Alcohol is Dangerous

There is no known safe time to drink alcohol during pregnancy. Drinking alcohol in the first three months of pregnancy can cause the baby to have abnormal facial features. Growth and central nervous system problems (e.g., low birthweight, behavioral problems) can occur from drinking alcohol anytime during pregnancy. The baby's brain is developing throughout pregnancy and can be damaged at any time.

If a woman is drinking alcohol during pregnancy, it is never too late to stop. The sooner a woman stops drinking, the better it will be for both her baby and herself.

advisory in English (/ncbddd /fasd/documents /SurgeonGenbookmark.pdf) and Spanish (/ncbddd /fasd/documents /SurgeonGenbookmarkSp.pdf) »

Order free materials » (http://wwwn.cdc.gov /pubs/birthdefects.aspx#FAS)

Get Help!

If you are pregnant or trying to get pregnant and cannot stop drinking, get help! Contact your doctor, local Alcoholics Anonymous, or local alcohol treatment center.

Substance Abuse Treatment Facility Locator (http://findtreatment.samhsa.gov)
The Substance Abuse and Mental Health Services Administration (SAMHSA) has a treatment facility locator. This locator helps people find drug and alcohol treatment programs in their area.

Alcoholics Anonymous (http://www.aa.org/?Media=PlayFlash) (A.A.)
Alcoholics Anonymous® is a fellowship of men and women who share their experience, strength and hope with each other that they may solve their common problem and help others to recover from alcoholism. Locate an A.A. program (http://www.aa.org/lang/en/meeting_finder.cfm?origpage=29) near you.

More Information

More questions about drinking alcohol during pregnancy?
Visit our Questions & Answers page » (/ncbddd/fasd/faqs.html)

Want to learn more about what CDC is doing to prevent alcohol-exposed pregnancies?
Visit our Preventing Alcohol Use During Pregnancy page » (/ncbddd/fasd/research-preventing.html)

Related Pages

- Alcohol Use in Pregnancy Q&A (/ncbddd/fasd/faqs.html)
- Planning Pregnancy (/ncbddd/pregnancy_gateway/before.htm)
- Healthy Pregnancy (/ncbddd/pregnancy_gateway/default.htm)
- Developmental Disabilities (/ncbddd/dd/default.htm)
- Birth Defects (/ncbddd/bd/default.htm)
- Alcohol and Public Health (http://www.cdc.gov/alcohol/index.htm)
- CDC's National Center on Birth Defects and Developmental Disabilities (/ncbddd/index.html)

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Home (../index.html) > Disease Listing (../disease_listing.html) > Salmonellosis General Information

Salmonellosis

More information about Salmonellosis and related outbreaks may be found on the *Salmonella* Topic Page (www.cdc.gov/salmonella)

General Information | Technical Information (salmonellosis_ti.html) | **Additional Information** (salmonellosis_ai.html)

Frequently Asked Questions

What is salmonellosis?

Salmonellosis is an infection with bacteria called *Salmonella*. Most persons infected with *Salmonella* develop diarrhea, fever, and abdominal cramps 12 to 72 hours after infection. The illness usually lasts 4 to 7 days, and most persons recover without treatment. However, in some persons, the diarrhea may be so severe that the patient needs to be hospitalized. In these patients, the *Salmonella* infection may spread from the intestines to the blood stream, and then to other body sites and can cause death unless the person is treated promptly with antibiotics. The elderly, infants, and those with impaired immune systems are more likely to have a severe illness.

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What sort of germ is Salmonella?

Salmonella is actually a group of bacteria that can cause diarrheal illness in humans. They are microscopic living creatures that pass from the feces of people or animals to other people or other animals. There are many different kinds of *Salmonella* bacteria. *Salmonella* serotype Typhimurium and *Salmonella* **serotype Enteritidis** (www.cdc.gov/ncidod/dbmd/diseaseinfo/salment_g.htm) are the most common in the United States. *Salmonella* germs have been known to cause illness for over 100 years.

They were discovered by an American scientist named Salmon, for whom they are named.

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How can Salmonella infections be diagnosed?

Many different kinds of illnesses can cause diarrhea, fever, or abdominal cramps. Determining that *Salmonella* is the cause of the illness depends on laboratory tests that identify *Salmonella* in the stool of an infected person. Once *Salmonella* has been identified, further testing can determine its specific type.

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How can Salmonella infections be treated?

Salmonella infections usually resolve in 5-7 days and often do not require treatment other than oral fluids. Persons with severe diarrhea may require rehydration with intravenous fluids. Antibiotics, such as ampicillin, trimethoprim-sulfamethoxazole, or ciprofloxacin, are not usually necessary unless the infection spreads from the intestines. Some *Salmonella* bacteria have become resistant to antibiotics, largely as a result of the use of antibiotics to promote the growth of food animals.

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Are there long term consequences to a Salmonella infection?

Persons with diarrhea usually recover completely, although it may be several months before their bowel habits are entirely normal. A small number of persons with *Salmonella* develop pain in their joints, irritation of the eyes, and painful urination. This is called Reiter's syndrome. It can last for months or years, and can lead to chronic arthritis which is difficult to treat. Antibiotic treatment does not make a difference in whether or not the person develops arthritis.

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How do people catch Salmonella?

Salmonella live in the intestinal tracts of humans and other animals, including birds. *Salmonella* are usually transmitted to humans by eating foods contaminated with animal feces. Contaminated foods usually look and smell normal. Contaminated foods are often of animal origin, such as beef, poultry, milk, or eggs, but any food, including vegetables, may become contaminated. Thorough cooking kills *Salmonella*. Food may also become contaminated by the hands of an infected food handler who did not wash hands with soap after using the bathroom.

Salmonella may also be found in the feces of some pets, especially those with diarrhea, and people can become infected if they do not wash their hands after contact with pets or pet feces. Reptiles, such as turtles, lizards, and snakes, are particularly likely to harbor *Salmonella*. Many chicks and young birds carry *Salmonella* in their feces. People should always wash their hands immediately after handling a reptile or bird, even if the animal is healthy. Adults should also assure that children wash their hands after handling a reptile or bird, or after touching its environment.

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What can a person do to prevent this illness?

There is no vaccine to prevent salmonellosis. Because foods of animal origin may be contaminated with *Salmonella*, people should not eat raw or undercooked eggs, poultry, or meat. Raw eggs may be unrecognized in some foods, such as homemade Hollandaise sauce, Caesar and other homemade salad dressings, tiramisu, homemade ice cream, homemade mayonnaise, cookie dough, and frostings. Poultry and meat, including hamburgers, should be well-cooked, not pink in the middle. Persons also should not consume raw or unpasteurized milk or other dairy products. Produce should be thoroughly washed.

Cross-contamination of foods should be avoided. Uncooked meats should be kept separate from produce, cooked foods, and ready-to-eat foods. Hands, cutting boards, counters, knives, and other utensils should be washed thoroughly after touching uncooked foods. Hand should be washed before handling food, and between handling different food items.

People who have salmonellosis should not prepare food or pour water for others until their diarrhea has resolved. Many health departments require that restaurant workers with *Salmonella* infection have a stool test showing that they are no longer carrying the *Salmonella* bacterium before they return to work.

People should wash their hands after contact with animal feces. Because reptiles are particularly likely to have *Salmonella*, and it can contaminate their skin, everyone should immediately wash their hands after handling reptiles. Reptiles (including turtles) are not appropriate pets for small children and should not be in the same house as an infant. *Salmonella* carried in the intestines of chicks and ducklings contaminates their environment and the entire surface of the animal. Children can be exposed to the bacteria by simply holding, cuddling, or kissing the birds. Children should not handle baby chicks or other young birds. Everyone should immediately wash their hands after touching birds, including baby chicks and ducklings, or their environment.

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How common is salmonellosis?

Every year, approximately 40,000 cases of salmonellosis are reported in the United States. Because many milder cases are not diagnosed or reported, the actual number of infections may be thirty or more times greater. Salmonellosis is more common in the summer than winter.

Children are the most likely to get salmonellosis. The rate of diagnosed infections in children less than five years old is about five times higher than the rate in all other persons. Young children, the elderly, and the immunocompromised are the most likely to have severe infections. It is estimated that approximately 400 persons die each year with acute salmonellosis.

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What else can be done to prevent salmonellosis?

It is important for the public health department to know about cases of salmonellosis. It is important for clinical laboratories to send isolates of *Salmonella* to the City, County, or State Public Health Laboratories so the specific type can be determined and compared with other *Salmonella* in the community. If many cases occur at the same time, it may mean that a restaurant, food or water supply has a problem that needs correction by the public health department.

Some prevention steps occur everyday without you thinking about it. Pasteurization of milk and treatment of municipal water supplies are highly effective prevention measures that have been in place for decades. In the 1970s, small pet turtles were a common source of salmonellosis in the United States, so in 1975, the sale of small turtles was banned in this country. However, in 2008, they were still being sold, and cases of *Salmonella* associated with pet turtles have been reported. Improvements in farm animal hygiene, in slaughter plant practices, and in vegetable and fruit harvesting and packing operations may help prevent salmonellosis caused by contaminated foods. Better education of food industry workers in basic food safety and restaurant inspection procedures may prevent cross-contamination and other food handling errors that can lead to outbreaks. Wider use of pasteurized egg in restaurants, hospitals, and nursing homes is an important prevention measure. In the future, irradiation or other treatments may greatly reduce contamination of raw meat.

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What is the government doing about salmonellosis?

The Centers for Disease Control and Prevention (CDC) monitors the frequency of *Salmonella* infections in the country and assists the local and state health departments in investigating outbreaks and devising control measures. CDC also monitors the different types of *Salmonella* that are reported annually by public health laboratories of state and local health departments. The Food and Drug Administration (FDA) inspects imported foods, oversees inspection of milk pasteurization plants, promotes better food preparation techniques in restaurants and food processing plants, and regulates the sale of turtles. The FDA also regulates the use of specific antibiotics as growth promotants in food animals. The US Department of Agriculture monitors the health of food animals, inspects egg pasteurization plants, and is responsible for the quality of slaughtered and processed meat. The US Environmental Protection Agency regulates and monitors the safety of drinking water supplies.

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How can I learn more about this and other public health problems?

You can discuss any medical concerns you may have with your doctor or other heath care provider. Your local City or County Health Department can provide more information about this and other public health problems that are occurring in your area. General information about the public health of the nation is published every week in the "Morbidity and Mortality Weekly Report (MMWR)", by the CDC in Atlanta, GA. Every spring, the MMWR publishes a report of the incidence of *Salmonella* and other infections during the previous year in FoodNet sentinel surveillance sites. Epidemiologists in your local and state health departments are tracking many important public health problems, investigating special problems that arise, and helping to prevent them from occurring in the first place, and from spreading, when they occur.

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What can I do to prevent salmonellosis?

- Cook poultry, ground beef, and eggs thoroughly. Do not eat or drink foods containing raw eggs, or raw (unpasteurized) milk.
- If you are served undercooked meat, poultry or eggs in a restaurant, don't hesitate to send it back to the kitchen for further cooking.
- Wash hands, kitchen work surfaces, and utensils with soap and water immediately after they have been in

contact with raw meat or poultry.

- Be particularly careful with foods prepared for infants, the elderly, and the immunocompromised.
- Wash hands with soap after handling reptiles, birds, or baby chicks, and after contact with pet feces.
- Avoid direct or even indirect contact between reptiles (turtles, iguanas, other lizards, snakes) and infants or immunocompromised persons.
- Don't work with raw poultry or meat, and an infant (e.g., feed, change diaper) at the same time.
- Mother's milk is the safest food for young infants. Breastfeeding prevents salmonellosis and many other health problems.

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Content Source: **National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ZVED)**
(www.cdc.gov/nczved)

Page Located on the Web at http://www.cdc.gov/nczved/dfbmd/disease_listing/salmonellosis_gi.html#6

MayoClinic.com

Choking: First aid

By Mayo Clinic staff

By Mayo Clinic staff

Choking occurs when a foreign object becomes lodged in the throat or windpipe, blocking the flow of air. In adults, a piece of food often is the culprit. Young children often swallow small objects. Because choking cuts off oxygen to the brain, administer first aid as quickly as possible.

The universal sign for choking is hands clutched to the throat. If the person doesn't give the signal, look for these indications:

- Inability to talk
- Difficulty breathing or noisy breathing
- Inability to cough forcefully
- Skin, lips and nails turning blue or dusky
- Loss of consciousness

If choking is occurring, the Red Cross recommends a **"five-and-five"** approach to delivering first aid:

- **First**, deliver five back blows between the person's shoulder blades with the heel of your hand.
- **Next**, perform five abdominal thrusts (also known as the **Heimlich maneuver**).
- **Alternate** between five back blows and five abdominal thrusts until the blockage is dislodged.

To perform abdominal thrusts (Heimlich maneuver) on someone else:

- **Stand behind the person.** Wrap your arms around the waist. Tip the person forward slightly.
- **Make a fist with one hand.** Position it slightly above the person's navel.
- **Grasp the fist with the other hand.** Press hard into the abdomen with a quick, upward thrust — as if trying to lift the person up.
- **Perform a total of five abdominal thrusts**, if needed. If the blockage still isn't dislodged, repeat the five-and-five cycle.

If you're the only rescuer, perform back blows and abdominal thrusts before calling 911 or your local emergency number for help. If another person is available, have that person call for help while you perform first aid.

If the person becomes unconscious, perform standard CPR with chest compressions.

If you're alone and choking, you'll be unable to effectively deliver back blows to yourself. However, you can still perform abdominal thrusts to dislodge the item.

To perform abdominal thrusts (Heimlich maneuver) on yourself:

- **Place a fist** slightly above your navel.
- **Grasp your fist** with the other hand and bend over a hard surface — a countertop or chair will do.
- **Shove your fist** inward and upward.

Clearing the airway of a pregnant woman or obese person:

- **Position your hands a little bit higher** than with a normal Heimlich maneuver, at the base of the breastbone, just above the joining of the lowest ribs.
- **Proceed as with the Heimlich maneuver,** pressing hard into the chest, with a quick thrust.
- **Repeat** until the food or other blockage is dislodged or the person becomes unconscious.

Clearing the airway of an unconscious person:

- **Lower the person** on his or her back onto the floor.
- **Clear the airway.** If there's a visible blockage at the back of the throat or high in the throat, reach a finger into the mouth and sweep out the cause of the blockage. Be careful not to push the food or object deeper into the airway, which can happen easily in young children.
- **Begin cardiopulmonary resuscitation (CPR)** if the object remains lodged and the person doesn't respond after you take the above measures. The chest compressions used in CPR may dislodge the object. Remember to recheck the mouth periodically.

Clearing the airway of a choking infant younger than age 1:

- **Assume a seated position and hold the infant facedown** on your forearm, which is resting on your thigh.
- **Thump the infant gently but firmly** five times on the middle of the back using the heel of your hand. The combination of gravity and the back blows should release the blocking object.
- **Hold the infant faceup on your forearm** with the head lower than the trunk if the above doesn't work. Using two fingers placed at the center of the infant's breastbone, give five quick chest compressions.
- **Repeat the back blows and chest thrusts** if breathing doesn't resume. Call for emergency medical help.
- **Begin infant CPR** if one of these techniques opens the airway but the infant doesn't resume breathing.

If the child is older than age 1, give abdominal thrusts only.

To prepare yourself for these situations, learn the Heimlich maneuver and CPR in a certified first-aid training course.

References

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MayoClinic.com

Hand washing: Do's and don'ts

By Mayo Clinic staff

Original Article:http://www.mayoclinic.com/health/hand-washing/HQ00407

Hand washing: Do's and don'ts

Hand washing is an easy way to prevent infection. Understand when to wash your hands, how to properly use hand sanitizer and how to get your children into the habit.

By Mayo Clinic staff

Frequent hand washing is one of the best ways to avoid getting sick and spreading illness. Hand washing requires only soap and water or an alcohol-based hand sanitizer — a cleanser that doesn't require water. Find out when and how to wash your hands properly.

When to wash your hands

As you touch people, surfaces and objects throughout the day, you accumulate germs on your hands. In turn, you can infect yourself with these germs by touching your eyes, nose or mouth. Although it's impossible to keep your hands germ-free, washing your hands frequently can help limit the transfer of bacteria, viruses and other microbes.

Always wash your hands before:

- Preparing food
- Eating
- Treating wounds or giving medicine
- Touching a sick or injured person
- Inserting or removing contact lenses

Always wash your hands after:

- Preparing food, especially raw meat or poultry
- Using the toilet
- Changing a diaper
- Touching an animal or animal toys, leashes or waste
- Blowing your nose, coughing or sneezing into your hands
- Treating wounds
- Touching a sick or injured person
- Handling garbage or something that could be contaminated, such as a cleaning cloth or soiled shoes

Of course, it's also important to wash your hands whenever they look dirty.

How to wash your hands

It's generally best to wash your hands with soap and water. Follow these simple steps:

- Wet your hands with running water.
- Apply liquid, bar or powder soap.
- Lather well.
- Rub your hands vigorously for at least 20 seconds. Remember to scrub all surfaces, including the backs of your hands, wrists, between your fingers and under your fingernails.
- Rinse well.
- Dry your hands with a clean or disposable towel or air dryer.
- If possible, use your towel to turn off the faucet.

Keep in mind that antibacterial soap is no more effective at killing germs than is regular soap. Using antibacterial soap may even lead to the development of bacteria that are resistant to the product's antimicrobial agents — making it harder to kill these germs in the future.

How to use an alcohol-based hand sanitizer

Alcohol-based hand sanitizers — which don't require water — are an excellent alternative to soap and water. If you choose to use a commercially prepared hand sanitizer, make sure the product contains at least 60 percent alcohol. Then follow these simple steps:

- Apply enough of the product to the palm of your hand to wet your hands completely.
- Rub your hands together, covering all surfaces, for up to 25 seconds or until they're dry.

If your hands are visibly dirty, however, wash with soap and water. Antimicrobial wipes or towelettes are another option, although they're not as effective as alcohol-based sanitizers.

Kids need clean hands, too

Help your children stay healthy by encouraging them to wash their hands properly and frequently. Wash your hands with your children to show them how it's done. To prevent rushing, suggest washing their hands for as long as it takes to sing the "Happy Birthday" song twice. You might place hand-washing reminders at children's eye level, such as a chart by the bathroom sink for children to mark every time they wash their hands. If your children can't reach the sink on their own, keep a stepstool handy.

Alcohol-based hand sanitizers are OK for children and adolescents, too, especially when soap and water isn't available. Make sure the sanitizer completely dries before your child touches anything. Store the container safely away after use.

Hand washing is especially important for children in child care settings. Young children cared for in groups outside the home are at greater risk of respiratory and gastrointestinal diseases, which can easily spread to family members and other contacts. Be sure your child care provider promotes frequent hand washing or use of alcohol-based hand sanitizers. Ask whether the children are required to wash their hands several times a day — not just before meals. Note, too, whether diapering areas are cleaned after each use and whether eating and diapering areas are well separated.

A simple way to stay healthy

Hand washing doesn't take much time or effort, but it offers great rewards in terms of preventing illness. Adopting this simple habit can play a major role in protecting your health.

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CDC

MMWR

Morbidity and Mortality Weekly Report

www.cdc.gov/mmwr

Surveillance Summaries June 6, 2008 / Vol. 57 / No. SS-4

Youth Risk Behavior Surveillance — United States, 2007

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Youth Risk Behavior Surveillance — United States, 2007

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Abstract

Problem: Priority health-risk behaviors, which are behaviors that contribute to the leading causes of morbidity and mortality among youth and adults, often are established during childhood and adolescence, extend into adulthood, are interrelated, and are preventable.

Reporting Period Covered: January–December 2007.

Description of the System: The Youth Risk Behavior Surveillance System (YRBSS) monitors six categories of priority health-risk behaviors among youth and young adults, including behaviors that contribute to unintentional injuries and violence; tobacco use; alcohol and other drug use; sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases (STDs), including human immunodeficiency virus (HIV) infection; unhealthy dietary behaviors; and physical inactivity. In addition, YRBSS monitors the prevalence of obesity and asthma. YRBSS includes a national school-based survey conducted by CDC and state and local school-based surveys conducted by state and local education and health agencies. This report summarizes results from the national survey, 39 state surveys, and 22 local surveys conducted among students in grades 9–12 during 2007.

Results: In the United States, 72% of all deaths among persons aged 10–24 years result from four causes: motor-vehicle crashes, other unintentional injuries, homicide, and suicide. Results from the 2007 national Youth Risk Behavior Survey (YRBS) indicated that many high school students engaged in behaviors that increased their likelihood of death from these four causes. Among high school students nationwide during 2007, 11.1% had never or rarely worn a seat belt when riding in a car driven by someone else. During the 30 days before the survey, 29.1% of high school students had ridden in a car or other vehicle driven by someone who had been drinking alcohol, 18.0% had carried a weapon, and 5.5% had not gone to school because they felt they would be unsafe at school or on their way to or from school. During the 12 months before the survey, 6.9% of high school students had attempted suicide. In addition, 75.0% of high school students had ever drunk alcohol, and 4.4% had ever used methamphetamines. Substantial morbidity and social problems among youth also result from unintended pregnancies and STDs, including HIV infection. Results from the 2007 survey indicated that 47.8% of students had ever had sexual intercourse, 35.0% of high school students were currently sexually active, and 38.5% of currently sexually active high school students had not used a condom during last sexual intercourse. Among U.S. adults aged ≥25 years, 59% of all deaths result from two causes: cardiovascular disease and cancer. Results from the 2007 national YRBS indicated that risk behaviors associated with these two causes of death were present during adolescence. Among high school students nationwide during 2007, 20.0% had smoked cigarettes during the 30 days before the survey, 35.4% had watched television 3 or more hours per day on an average school day, and 13.0% were obese. During the 7 days before the survey, 78.6% of high school students had not eaten fruits and vegetables five or more times per day, 33.8% had drunk soda or pop at least one time per day, and 65.3% had not met recommended levels of physical activity.

Interpretation: Since 1991, the prevalence of many health-risk behaviors among high school students nationwide has decreased. However, many high school students continue to engage in behaviors that place them at risk for the leading causes of mortality and morbidity. The prevalence of most risk behaviors does not vary substantially among cities and states.

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Public Health Action: YRBS data are used to measure progress toward achieving 15 national health objectives for *Healthy People 2010* and three of the 10 leading health indicators, to assess trends in priority health-risk behaviors among high school students, and to evaluate the impact of broad school and community interventions at the national, state, and local levels. More effective school health programs and other policy and programmatic interventions are needed to reduce risk and improve health outcomes among youth.

Introduction

In the United States, 72% of all deaths among youth and young adults aged 10–24 years result from four causes: motor-vehicle crashes (30%), other unintentional injuries (15%), homicide (15%), and suicide (12%) (*1*). Substantial morbidity and social problems also result from the approximately 757,000 pregnancies among women aged 15–19 years (*2*), the estimated 9.1 million cases of sexually transmitted diseases (STDs) among persons aged 15–24 years (*3*), and the estimated 5,089 cases of human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) among persons aged 15–24 years (*4*) that occur annually. Among adults aged ≥25 years, 59% of all deaths in the United States result from cardiovascular disease (36%) and cancer (23%) (*1*). These leading causes of morbidity and mortality among youth and adults in the United States are related to six categories of priority health-risk behaviors: behaviors that contribute to unintentional injuries and violence; tobacco use; alcohol and other drug use; sexual behaviors that contribute to unintended pregnancy and STDs, including HIV infection; unhealthy dietary behaviors; and physical inactivity. These behaviors frequently are interrelated and are established during childhood and adolescence and extend into adulthood.

To monitor priority health-risk behaviors in each of these six categories and obesity and asthma among youth and young adults, CDC developed the Youth Risk Behavior Surveillance System (YRBSS) (*5*). YRBSS includes national, state, and local school-based surveys of students in grades 9–12. National, state, and local surveys have been conducted biennially since 1991 (Box).

This report summarizes results from the 2007 national Youth Risk Behavior Survey (YRBS) and trends during 1991–2007 in selected risk behaviors. Data from the 39 state and 22 local surveys with weighted data for the 2007 YRBSS cycle also are included (Figure 1) in this report. Data from the remaining five state surveys with unweighted data are not included. The national survey, 37 weighted state surveys, and 22 weighted local surveys were conducted during spring 2007, and two of the weighted state surveys were conducted during fall 2007.

BOX. Weighted and unweighted state and local surveys conducted as part of the Youth Risk Behavior Surveillance System, by year of survey, number of states, and number of large districts — United States, 1991–2007

Survey year	No. of states		No. of districts	
	Weighted	Unweighted	Weighted	Unweighted
1991	9	17	7	4
1993	22	18	9	5
1995	22	17	12	5
1997	24	14	15	2
1999	22	19	14	3
2001	22	15	14	5
2003	32	11	20	2
2005	40	4	21	2
2007	39	5	22	0

Methods

Detailed information about the local, state, and national YRBSs has been described elsewhere (*5*). Information also is available at http://www.cdc.gov/yrbs.

Sampling

National Youth Risk Behavior Survey

The sampling frame for the 2007 national YRBS consisted of all public and private schools with students in at least one of grades 9–12 in the 50 states and the District of Columbia. The sampling frame was obtained from the Quality Education Data (QED), Inc., database (*6*). The QED database includes information on both public and private schools and the most recent data from the Common Core of Data from the National Center for Education Statistics (*7*). A three-stage cluster sample design produced a nationally representative sample of students in grades 9–12 who attend public and private schools. The first-stage sampling frame consisted of 1,268 primary sampling units (PSUs), consisting of counties, subareas of large counties, or groups of smaller, adjacent counties. The 1,268 PSUs were categorized into 16 strata according to their metropolitan statistical area (MSA) status (i.e., urbanicity) and the percentages of black* and Hispanic† students in the

* Black students refers to black or African-American, non-Hispanic students.
† Hispanic students refers to Hispanic or Latino students of any race.

Frequently Asked Questions Concerning Human Immunodeficiency Virus (HIV/AIDS) Prevention in New Jersey Public Schools

1. **What must be included in the district's HIV prevention education curriculum?**

   New Jersey statutes *N.J.S.A.* 18A:35-4.19-22 require public schools to provide health education that promotes abstinence from sexual activity and injecting drug use as the only completely reliable means of preventing HIV/AIDS, sexually transmitted diseases and pregnancy. The act requires that instruction include information on the relative effectiveness of various methods to prevent infection and pregnancy. The New Jersey Core Curriculum Content Standards in Comprehensive Health and Physical Education incorporate this mandate under several standards and strands, with multiple student performance indicators that are related to HIV prevention. For instance, student performance indicators in the areas of health promotion and disease prevention (Standard 2.1), social, emotional and life skills (Standard 2.2), substance use (Standard 2.3) and human sexuality (Standard 2.4) make up components of required HIV prevention education. These standards also indicate grade levels by which students should have attained key knowledge and skills. The standards maintain local flexibility to adopt a curriculum and materials appropriate to the community served by the school.

2. **Does the New Jersey Department of Education (NJDOE) have a position on the teaching of abstinence from sexual activity?**

   Since 1994, the New Jersey State Board of Education has had a statement which directs NJDOE to continue to advocate the teaching of abstinence as the only completely reliable means of preventing the sexual transmission of HIV and other sexually transmitted diseases among school age youth, in the context of broader public health concerns and local values and norms. This statement affirmed the NJDOE's regulations which, since 1990, have required instruction in HIV prevention, family life, health promotion and disease prevention appropriate to the age, growth, and maturity of students and adapted to the needs and values of the local community. This position is consistent with state law adopted in 2002 (*N.J.S.A.* 18A:35-4.19-22) that requires schools to emphasize abstinence from sexual activity and from drug use, as explained above. The state law, Board of Education position and New Jersey Core Curriculum Content Standards direct public schools to take a balanced approach to instruction in human sexuality that promotes abstinence from all forms of sexual intercourse and skills for maintaining abstinence, while also building student knowledge and skills to reduce the risks involved in sexual relationships.

   Evaluation studies available to date demonstrate that some programs which both advocate sexual abstinence and also provide students with skills to maintain abstinence can be effective in delaying student sexual involvement if delivered before most students have experienced sexual intercourse. Not surprisingly, programs that address only those beliefs and skills that are related to abstinence do not show impact on risk reduction behaviors such as use of condoms or reduced number of sexual partners. Programs that include instruction in risk reduction methods, such as use of condoms and other prophylactics, can influence students to delay first intercourse, reduce number of sexual partners and increase consistent use of condoms. It is important that schools encourage and support students who are abstinent while also equipping all students with the knowledge and skills they need for healthy sexuality. It is also important that schools avoid creating such pressure for sexual abstinence that they discourage students who are sexually active from seeking adult counsel or health care services.

3. **Can boys and girls be instructed separately in human sexuality?**

   Pursuant to *N.J.A.C.* 6A:7-1.7(b)2, separate courses of instruction for boys and girls, whether physical education, health, industrial arts, vocational or other courses, are prohibited. However, portions of classes which deal exclusively with human sexuality may be conducted in separate sessions for boys and girls, provided the course content is the same. Students benefit from having opportunities to raise concerns unique to their gender.

4. **How does HIV or AIDS relate to the school's responsibility to exclude students who have a communicable disease and to report infectious disease to local boards of health and to the New Jersey Department of Health and Senior Services?**

   HIV infection, known as AIDS in its advanced stages, is not a reportable communicable disease pursuant to

New Jersey Department of Health and Senior Services (NJDHSS) regulations related to schools (*N.J.A.C.* 8:57). Only testing laboratories and physicians that provide diagnosis of HIV infection are required to report to the NJDHSS. Neither HIV infection nor AIDS can be used as reason to exclude a student from school programs or from use of educational transportation, including athletics and school-sponsored trips. Since 1992, there are no exceptional conditions for excluding an HIV-infected pupil from school regardless of age

Any school may have students or employees with or without HIV infection who have a weakened immune system, for instance, those who have had an organ transplant, for whom the school's communicable disease procedures have particular importance. Some schools provide courtesy notification directly to the parents/guardians of immuno-compromised students on request. Others provide prompt notification notices to all students to take home. Immuno-compromised students are also more likely than others to develop infections with communicable diseases. These secondary infections do fall under the district's required responsibilities to report and control communicable disease.

5. **Is HIV infection ever a reason to exclude students from attendance at school or regular education programs?**

Neither HIV infection nor AIDS is reason to exclude a student from attendance at school, deny use of educational transportation, or classify as eligible for home instruction or special education. Prior to 1992, state regulations provided a list of exceptional conditions under which HIV-infected students might be excluded. These conditions (incontinence, uncontrolled drooling and documented aggressive behavior such as biting) were eliminated from state regulations because of evidence that urine, feces and saliva are not significant vehicles of HIV transmission. Biting is a potential, but not significant method by which HIV can be transmitted, since most bites do not include exchange of blood from one person to another. The basis for excluding or classifying a student with HIV infection are the same as those applied to other students, regardless of HIV status. Students with advanced HIV infection may develop handicapping conditions which would call for evaluation as conditions appropriate for classification.

6. **Who needs to know that a student or employee has HIV infection?**

There is no need for anyone at school to know the HIV status of a student or employee. What everyone does need to understand is that the blood of **any** student or employee could potentially be infected with a bloodborne pathogen such as HIV or Hepatitis B, and that under normal conditions in regular educational programs, use of "Universal Precautions" is sufficient to protect against transmission of bloodborne diseases. Instruction of both staff and students in universal precautions and first aid procedures assists in implementing this policy.

Students, their parents or guardians are not obligated to inform school personnel regarding their HIV status and cannot be required to do so under *N.J.A.C.* 6A:16-2.2(c). School staff with knowledge of the HIV status of a student are not at liberty to share that information without specific written consent from the parent/guardian or from the student, if age 12 or greater. New Jersey law against employment discrimination at *N.J.S.A.* 10:5-5(g) and *N.J.S.A.* 10:5-29.1 include HIV and AIDS as protected handicap or disabling conditions. *N.J.A.C.* 6A:7-1.9 requires New Jersey public schools to provide equality in employment and contract practices regardless of disability.

7. **What are Universal Precautions?**

Universal Precautions are an approach to infection control which assume that all human blood and some other bodily fluids could be infectious for HIV, Hepatitis B or other bloodborne infections and must be treated accordingly. Regarding HIV, the human body fluids that transmit HIV are blood, semen, vaginal fluid and breast milk, among which blood is the only one encountered by school staff in general education settings. The appropriate procedures for implementing universal precautions include covering any weeping skin lesions, using disposable latex gloves for any contact with blood or body fluids containing visible blood, thorough washing with soap and water or disinfectant following contact, and proper cleaning and disposal methods.

Universal Precautions, which are suitable for the general education setting, differ from Standard Precautions which are suitable for health-care settings. Standard Precautions treat all body fluids, secretions, and excretions except sweat, non-intact skin and mucous membranes as potentially infectious. For example, under Standard Precautions a student's nasal secretions would be handled as potentially infectious and would be handled only with the protection of disposable latex gloves.

The Centers for Disease Control and Prevention recommend use of Standard Precautions in all health care settings. The extent to which Standard Precautions are used in other settings within the school's program should be based on assessment of the real potential for exposure to bloodborne pathogens, as reflected in the district bloodborne pathogen *Exposure Control Plan* required by federal regulations (29 CFR 1910:1030) and state occupational safety law (*N.J.S.A.* 34:6A-25 et seq.). School districts may designate nurses, custodians,

coaches and some special education teachers as reasonably likely to be exposed to bloodborne pathogens in their work settings. These identified staff must be provided immunizations, training and protective equipment.

8. **How do records related to the HIV status of students relate to other records maintained by the school?**

While not required to do so, some parents or students may share HIV status information in order to obtain health care or educational support. Records and information regarding the HIV status of a student may be shared only with the written consent of the student's parent or guardian or the student, if age 12 or older, and only with those who need to know in order to determine the educational program for the student. Good practice calls for a consent form which includes an expiration date and specifies the individuals to be informed by name or title. A school is not permitted to require HIV status information as part of required school health examinations or health records. However, when school health staff are asked to administer medications to a student during the school day, the certified school nurse must have a written order and has the responsibility to secure additional information from the prescribing physician to address any safety concerns. This situation would require release of information and the creation of an HIV-identifying record. Due to rules of the Health Insurance Portability and Accountability Act of 1996 (HIPAA), many school districts will be establishing information release procedures like this for all types of student health information.

The standards for maintaining confidentiality of records that identify the HIV status of an individual are established in *N.J.S.A.* 26:5C, and exceed those established for district educational records and general health records, such as immunization records. HIV-identifying records could include the written consent form, referral letters from health care providers, child study team evaluations, or medication records. Should the identified student transfer to another school, the HIV-identifying records should not be transferred automatically with other health records. A plan and written consent for transfer should be established with the student and parent.

9. **Do competitive sports present a risk of exposure to HIV?**

The risk of HIV exposure during competitive sports is proportional to the risk of direct blood to blood contact. The risk of blood to blood contact during school supervised play is very minimal since this would require that two players with uncovered wounds come in direct contact with each other. Both routine infection control procedures and common sense call for requiring players to cover all weeping skin lesions before play begins and removing any player with a bleeding wound until bleeding is stopped and any wounds are covered. Since there is some potential for exposure to blood or body fluids as a result of athletic injury, both students and school personnel should use universal precautions in providing first aid.

While there is some very minimal risk, school staff should be aware that the theoretical risk of HIV transmission as a result of athletic injury is very low compared to the definitive risk of HIV transmission through unprotected sexual intercourse or sharing of injection equipment. Therefore, effective HIV prevention education for youth, including education for athletic teams, should emphasize prevention in significant risk situations.

10. **Can youth get HIV testing without parental consent or notification in New Jersey?**

New Jersey law does not specifically address whether parental **consent** is needed for a person under the age of 18 to get an HIV test. *N.J.S.A.* 9:17A-4 assures that a person under age 18 can be tested for a sexually transmitted infection without parental consent if they have any reason to think they might be infected. Because of the ambiguity concerning the law's application to HIV, some health care providers will test for HIV without parental consent while others will not. A person under age 18 can always obtain HIV testing at a state-supported **anonymous** HIV counseling and testing site located across the state. Anonymous testing means that the test site has only a code number to identify the test sample, and the person tested must return with the code in order to learn their test result. Sites that provide **confidential** HIV counseling and testing vary in their policies for testing youth. These sites record the name and contact information of the person being tested, so that they can follow up with test results, if the person does not return. New rapid tests for HIV allow a person to provide a sample and learn the results during a single office visit.

Concerning parental **notification** related to HIV, New Jersey law gives the treating physician/health care provider the right to decide whether or not it is appropriate to notify a parent or guardian concerning a test or treatment for a sexually transmitted infection or pregnancy. They are not obligated under the law either way (*N.J.S.A.* 9:17A-5). For instance, a physician/health care provider may choose to not notify a parent concerning a sixteen-year-old youth with a sexually transmitted infection that can be cured safely, quickly, and at low cost. Because treatment for HIV is lifelong, complex and expensive, parental involvement is usually necessary. Health care workers will counsel a young person concerning how to inform and involve a parent, with or without physician notification.

Frequently Asked Questions on Student Services

Administration of Medication in Schools

Q. Who is permitted to administer medications to students?

A. Only the following individuals are authorized to administer medication to pupils in schools:

1. School staff holding a current medical or nursing license (e.g., the school physician or school nurse);
2. A substitute school nurse employed by the district;
3. The pupil's parent or guardian;
4. A pupil approved to self-administer per *N.J.S.A.* 18A:40-12.3; and
5. A school staff designated and trained to administer epinephrine using an auto-injector per *N.J.S.A.* 18A:40-12.5 and 12.6.

Q. How should medications be administered on a field trip?

A. Students who have been classified as eligible for special education or who have a 504 plan that includes medications cannot be denied access to educational opportunities based on their need for medication during the school day. It is recommended that children who require accommodations because they are on medication should have a 504 plan. The school must make every effort to provide reasonable accommodations for these students. Possible options include:

1. Send a school nurse on the trip;
2. Hire a school nurse substitute to go on the trip;
3. Ask the parent or guardian to go on the trip;
4. Confer with the parent and the child's health-care provider to alter the time, dosage, route or kind of medication on the day of the trip and obtain a written order for the change; or
5. Confer with the parent and the health-care provider to eliminate the medication on the day of the trip and obtain a written order from the health-care provider for the change.

For more information on 504 Plans click on http://www.ed.gov/about/offices/list/ocr/504faq.html.

HIV Policy and Practice in New Jersey Public Schools

Q. Who needs to know that a student or employee has HIV infection?

A. There is no need for anyone at school to know the HIV status of pupils or employees. What everyone does need to understand is that the blood of any student or employee could potentially be infected with a bloodborne pathogen such as HIV or Hepatitis B and that under normal conditions in regular educational programs, use of universal precautions is sufficient to protect against transmission of bloodborne diseases. Schools are required to help school staff understand and maintain this minimal risk through at least annual inservice training of staff in HIV facts and fallacies and school procedures and through ready access to the necessary protective equipment. Additional instruction of students in universal precautions and first aid procedures assists school staff in implementing this policy.

Pupils, their parents or guardians, and employees are not obligated to inform school personnel regarding their HIV status and cannot be required to do so in accordance with state regulation and statute. School staff with knowledge of the HIV status of others in the school is not at liberty to share that information with others without specific written consent.

Q. How do records related to the HIV status of students relate to other records maintained by the school?

A. While not required to do so, some parents or pupils may share HIV status information in order to obtain health care or educational support. Records and information regarding the HIV status of a pupil may be shared only with the written consent of the pupil's parent or guardian and only with those who need to know in order to determine the educational program for the pupil. Good practice calls for a consent form that specifies the individuals to be informed by name and by title. HIV status may not be required as part of a school's health screening requirements, since it is an exception to records required by the state as part of student and employee physical examinations.

The standards for maintaining confidentiality of records which identify the HIV status of an individual are established in *N.J.S.A.* 26:5C, and exceed those established for district pupil records or health records. Therefore, any such record should be maintained separately from educational or health records and be released only with written consent or under conditions allowed in the statute. Identifying records could include the written consent form, referral letters from health-care providers, child study team evaluations, or medication records. Should the identified pupil transfer to another school, the HIV identifying records should not be transferred automatically with other health records. Rather, a plan and written consent for transfer should be established with the pupil and parent.

Requirements for Entry Into School

Q. What kind of medical examinations are required of students attending public schools?

A. Students attending public schools are required to show evidence of an examination upon entry into school and for the purpose of participating on an intramural or interscholastic athletic team. Additionally, students seeking working papers are required to obtain a statement of medical fitness. For more information regarding student medical examinations, go to: http://www.state.nj.us/education/parents/medQ&A.htm

Q. Is my child required to be immunized before entering school?

A. There are immunization requirements for entry into school. An immunization guidance chart summarizes all requirements is available at the New Jersey Department of Health and Senior Services Website at : http://www.nj.gov/health/forms/imm-7.pdf

Freqently Asked Questions on Education Progarms

State Facilities Education Act (SFEA)

Q. Who provides programs to pupils in state facilities?

A. The New Jersey Department of Corrections (DOC), the New Jersey Department of Human Services (DHS) the New Jersey Department of Children and Families (DCF) and the Juvenile Justice Commission (JJC) in the New Jersey Department of Law and Public Safety operate educational programs in state facilities in accordance with *N.J.S.A.* 18A:7B-1, the State Facilities Education Act (SFEA). Each of these agencies provides educational programs for pupils with educational disabilities, as well as those who are not disabled.

Educational programs in these state entities are funded through state aid from identified districts based on an October 15 pupils count. In general, the DOC serves a school-age pupil population between the ages of 18 and 21, and the JJC serves a population from 12 to 17 years of age. The DHS serves the largest proportion of SFEA-eligible pupils with educational disabilities with an age range spanning three to 21 years. Enactment of the *Comprehensive Educational Improvement and Financing Act* (CEIFA) expanded the SFEA to provide 50 percent of the approved per-pupil cost for children confined to county detention centers with the other 50 percent provided by county governments. This initiative is coordinated through the JJC's Office of Education.

Alternative Education

Q. What is an alternative education?

A. An alternative education program is a comprehensive educational program delivered in a non-traditional learning environment that is distinct and separate from the existing general or special education program. The alternative education program shall fulfill the program criteria pursuant to *N.J.A.C.* 6A:16-9.2 and be approved by the district board of education, pursuant to *N.J.A.C.* 6A:16-9,1(a), or by the Commissioner of Education pursuant to *N.J.A.C.* 6A:16-9.1(b), for the purpose of addressing the individual learning, behavior and health needs of students determined by the school district to be at risk of school failure or who have been mandated for removal from general education, pursuant to *N.J.A.C.* 6A:16-5.5, 5.6 and, as appropriate, 5.7.

Q. How do alternative education programs get approved?

A. School district operated programs must be approved by the local board of education. A state agency, public operated

program or department-approved school, not operated by a school district, interested in operating an alternative education program must apply directly to the NJDOE.

Nonpublic Education

Q. How do I find additional information regarding nonpublic school services for my school or child?

A. If you have a question regarding nonpublic school services, please email nonpublicschoolservices@doe.state.nj.us or call (609) 292-6591.

Home Schooling

Q. What are the homeschooling requirements in New Jersey?

A. The compulsory education law (*N.J.S.A.* 18A: 38-25) permits children to receive "equivalent instruction elsewhere than at school" which includes the home; however, the New Jersey Department of Education does not regulate such instruction. Additional homeschooling "Frequently Asked Questions" can be found at http://www.state.nj.us/education/genfo/overview/faq_homeschool.htm

Character Education

Q. Where can I find information regarding school climate including character education or social-emotional learning?

A. The New Jersey Department of Education provides a variety of resources in the area of school climate. For information regarding the federal *Partnerships for Character Education* grant, go to www.rucharacter.org. For information regarding the *Developing Safe and Civil Schools: A Coordinated Approach for Social-Emotional and Character Development* go to www.teachSECD.com. For information regarding the *Title IV-A and Unsafe School Choice Option Training and Technical Assistance Project* go to http://sdfsc.rutgers.edu.

Frequently Asked Questions on School Safety and Violence

Q. What standards for discipline are in place regarding weapons possession and violence in schools?

A. *N.J.S.A.* 18A:37-9 through 12 and *N.J.A.C.* 6A:16-5.5 requires that students who are convicted or adjudicated delinquent for possession of a firearm or who are found to be in possession of a firearm on school property must be immediately removed from the general education program and provided with an alternative program, pending a hearing before the board of education. *N.J.S.A.* 18A:37-2.2 through 2.5 and *N.J.A.C.* 6A:16-5.6 require that students who commit assaults upon members of the school community with a weapon other than a firearm must be immediately removed from the school's general education program and provided with an alternative program, pending a hearing before the board of education. In addition, the Department of Education has established regulations on student conduct (*N.J.A.C.* 6A:16-7) that provide requirements for codes of student conduct, short-and long-term suspensions and student's due process procedural and educational rights, expulsions, conduct away from school grounds, attendance (including trancy) harassment, intimidation and bullying and student records and confidentiality.

Q. What strategies are in effect regarding the identification of students with problems that could lead to disruption and violence?

A. The Intervention and Referral Services regulations (*N.J.A.C.* 6A:16-8) require district boards of education to establish and implement a coordinated system in each school building in which general education students are served, for the planning and delivery of intervention and referral services that are designed to assist students who are experiencing learning, behavior or health difficulties and to assist staff who have difficulties in addressing students' learning behavior or health needs.

Q. How can the public see data on violence and vandalism in a particular district or school?

A. The public will find data summarized by district and school (including incident definitions), as well as the Commissioner's Annual Report to the Legislature, at http://www.state.nj.us/education/schools/vandv/index.html.

Q. What options do students have if they become victims of violent criminal offenses?

A. Information on options for student victims of violent criminal offenses may be found in the *Unsafe School Choice Option (USCO) Policy* at http://www.state.nj.us/education/grants/nclb/policy/unsafe.htm. Additional information can be found in the document titled *USCO Policy Provisions I and II Questions and Answers*, which can be found at http://www.nj.gov/education/grants/nclb/policy/unsafeqa.htm.

Frequently Asked Questions on Student Conduct

Q. Where can I find more information on school requirements for addressing harassment, intimidation and bullying?

A. Information on school requirements for harassment, intimidation and bullying can be found in the regulations in subchapter 7.9 of Chapter 16, Programs to Support Student Development at http://www.state.nj.us/education/code/current/. Guidance for schools to address these requirements can be found in the document titled *Model Policy and Guidance for Prohibiting Harassment, Intimidation and Bullying on School Property, at School-Sponsored Functions and on School Buses* at http://www.nj.gov/education/students/safety/schools/policy.shtml.

Q. Where can I find school requirements for preventing and intervening with student conduct problems?

A. The requirements for student conduct, including codes of student conduct, short- and long-term suspensions, expulsions and attendance, can be found in the regulations in Subchapter 7, Student Conduct of Chapter 16, Programs to Support Student Development at http://www.state.nj.us/education/code/current/.

Q. What strategies are in effect for schools to identify and intervene with general education students who have behavior, learning or health problems?

A. Each district board of education is required to establish and implement a coordinated system in each school building in which general education students are served for the planning and delivery of intervention and referral services (I&RS) that are designed to assist students who are experiencing learning, behavior or health difficulties and to assist staff who have difficulties in addressing students' learning, behavior or health needs. The I&RS regulations can be found in subchapter 8 of Chapter 16, Programs to Support Student Development at http://www.state.nj.us/education/code/current/. Guidance for the I&RS teams can be found in the publication titled *Resource Manual for Intervention and Referral Services* at http://www.state.nj.us/education/students/irs/.

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New Jersey School Laws
NJSA: 18 A and NJAC: 6A

NJSA: 18A

18A :6-1.1. Experimental or stimulation of learning process drugs or medications; administration to pupils; written consent of parent or guardian and physician

The written consent of a parent or guardian of a pupil and of a physician of the parent's or guardian's choice shall be required prior to the administration to a pupil by school authorities of any drug of medication for experimental purposes or for stimulating the learning process.

L.1973, c. 115, s. 1, eff. May 7, 1973.

18A :6-2. Instruction in accident and fire prevention

Regular courses of instruction in accident prevention and fire prevention shall be given in every public and private school in this state, which instruction shall be adapted to the understanding of the several grades and classes in said schools.

L.1967, c.271.

18A :6-3. Courses in Constitution of United States

18A :6-3. Regular courses of instruction in the Constitution of the United States shall be given in all public schools and in all private schools, attendance at which is a sufficient compliance with the compulsory educational requirements of this title in this State, which instruction shall begin not later than the opening of the seventh grade in public schools and of the equivalent grade in private schools and shall continue in the high school course and in courses of State colleges and universities and the educational departments of the State and municipal institutions.

TITLE 18A EDUCATION

18A:6-111 Findings, declarations relative to instruction in suicide prevention in public schools.

1. The Legislature finds and declares that:

a. Suicide is a leading cause of death for young people in this State. According to the Center for Health Statistics in the New Jersey Department of Health and Senior Services, between 1999 and 2001 more than 1,500 young people ages 13 to 18 made suicide attempts which resulted in hospitalization. More than 50 of these attempts were fatal. When young people up to 24 years of age are added to the equation, the number of attempted suicides rises to 3,000 and the number of fatalities rises to nearly 200.

b. A suicide can devastate a community. According to the National Alliance for the Mentally Ill (NAMI), suicide severely impacts the families and friends left behind, who often wrongly live with extreme shame and guilt over not having prevented the death of their loved one. Moreover, many attempts which do not result in death

nonetheless end in serious injury to the victims and lifelong trauma to their families and those who know them.

c. A person who is considering suicide may exhibit behavioral warning signs. If someone notices the warning signs of suicide, it may be possible to avert a tragedy. With the possible exception of a parent, no one is better situated than a teacher to detect these signs and to initiate appropriate steps to prevent a suicide attempt. Proper training for teaching staff members can thus save pupils' lives and save the families and friends of would-be victims the trauma of a suicide or suicide attempt. Moreover, early identification of depression and other problems may help to reduce the number of young people who commit or attempt to commit suicide once they have left school and entered adulthood.

d. It is therefore appropriate for the Legislature to require: the State Board of Education to require instruction in suicide prevention as part of any continuing education which public school teaching staff members must complete to maintain their certification; and inclusion of suicide prevention awareness in the Core Curriculum Content Standards in Comprehensive Health and Physical Education.

L.2005,c.310,s.1.

18A :6-112 Instruction in suicide prevention for public school teaching staff.

2. The State Board of Education, in consultation with the New Jersey Youth Suicide Prevention Advisory Council established in the Department of Children and Families pursuant to P.L.2003, c.214 (C.30:9A-22 et seq.), shall, as part of the professional development requirement established by the State board for public school teaching staff members, require each public school teaching staff member to complete at least two hours of instruction in suicide prevention, to be provided by a licensed health care professional with training and experience in mental health issues, in each professional development period.

L.2005, c.310, s.2; amended 2006, c.47, s.80.

18A :6-113 Provision for instruction in suicide prevention in school curriculum.

3. Within 180 days of the effective date of this act, the State Board of Education shall revise the Core Curriculum Content Standards in Comprehensive Health and Physical Education to provide for instruction in suicide prevention in an appropriate place in the curriculum of elementary school, middle school, and high school pupils.

18A:40-12.7 Nebulizer required in schools.

2. Each public and nonpublic school in the State shall have and maintain for the use of pupils at least one nebulizer in the office of the school nurse or a similar accessible location

18A:40-12.8 Regulations for use of nebulizer in schools.

3. The State Board of Education, in consultation with the Commissioner of Health and Senior Services, shall adopt regulations requiring each public school board of education todevelop policies for the administration of asthma medication through the use of a nebulizer bythe school nurse or other person authorized by regulation. The regulations shall include:

a. a requirement that each certified nurse or other person authorized to administer asthma medication receive training in airway management and in the use of nebulizers and inhalers consistent with nationally recognized standards, including, but not limited to, those of the National Institutes of Health and the American Association of Allergy and Immunology; and

b. a requirement that each pupil authorized to use asthma medication pursuant to section 1 of P.L.1993, c.308 (C.18A: 40-12.3), or a nebulizer have an asthma treatment plan prepared by the physician of the pupil, which shall identify, at a minimum, asthma triggers, the treatment plan, and such other elements as shall be determined by the State Board of Education.

http://www.pacnj.org/61.pdf

NJAC:6A

SUBCHAPTER 3 COMPREHENSIVE ALCOHOL, TOBACCO AND OTHER DRUG ABUSE PROGRAMS

6A:16-3.1 Establishment of comprehensive alcohol, tobacco and other drug abuse programs

(a) Each district board of education shall establish a comprehensive program of prevention, intervention, referral for evaluation, referral for treatment and continuity of care for student alcohol, tobacco and other drug abuse in the public elementary and secondary schools of the district according to the requirements of N.J.S.A. 18A:40A-10.

1. The purpose of the prevention component of the program shall be to:

i. Keep students from using alcohol, tobacco or other drugs;

ii. Reduce or eliminate the incidence and prevalence of student alcohol, tobacco and other drug abuse;

iii. Increase the age of onset of students' first use of alcohol, tobacco or other drugs;

iv. Reduce the factors that place students at risk for involvement with alcohol, tobacco or other drugs through school and community-based planning processes;

v. Contribute to the development of school environments and alternative activities that are alcohol, tobacco and other drug-free;

vi. Increase the knowledge and skills of students, staff and community members for avoiding the harmful effects of alcohol, tobacco and other drug use; and

vii. Actively involve staff, parents and other community members in the development and implementation of prevention program plans.

2. The purpose of the intervention, referral for evaluation and referral for treatment components of the program shall be to:

SUBCHAPTER 4. PROCEDURES FOR ALCOHOL AND OTHER DRUG ABUSE INTERVENTION

6A:16-4.1 Adoption of policies and procedures for the intervention of student alcohol and other drug abuse

(a) Each district board of education shall adopt and implement policies and procedures for the assessment, intervention, referral for evaluation, referral for treatment and discipline of students whose use of alcohol or other drugs has affected their school performance, or for students who consume or who are suspected of being under the influence of the following substances on school grounds, including on school buses or at school-sponsored functions, according to the requirements of N.J.S.A. 18A:40A-9, 10 and 11:

1. Alcoholic beverages;

2. Any controlled dangerous substance, including anabolic steroids, as defined in N.J.S.A. 24:21-2 and 2C:35-2;

3. Any chemical or chemical compound which releases vapor or fumes causing a condition of intoxication, inebriation, excitement, stupefaction or dulling of the brain or nervous system, including, but not limited to, glue containing a solvent having the property of releasing toxic vapors or fumes, as defined in N.J.S.A. 2C:35-10.4; and

4. Over-the-counter and prescription medications which are improperly used to cause intoxication, inebriation, excitement, stupefaction or dulling of the brain or nervous system.

The following provides additional information on the administration of medication to students in our schools

CHAPTER 61

AN ACT concerning the self-administration of medication by school pupils for asthma, amending P.L.1993, c.308 and supplementing chapter 40 of Title 18A of the New Jersey Statutes, and making an appropriation.

BE IT ENACTED *by the Senate and General Assembly of the State of New Jersey:*

1. Section 1 of P.L.1993, c.308 (C.18A:40-12.3) is amended to read as follows:

C.18A:40-12.3 Self-administration of medication by pupil permitted.

1. a. A board of education or the governing board or chief school administrator of a nonpublic school shall permit the self-administration of medication by a pupil for asthma or other potentially life-threatening illnesses provided that:

(1) the parents or guardians of the pupil provide to the board of education or the governing board or chief school administrator of a nonpublic school written authorization for the self-administration of medication;

(2) the parents or guardians of the pupil provide to the board of education or the governing board or chief school administrator of a nonpublic school written certification from the physician of the pupil that the pupil has asthma or another potentially life-threatening illness and is capable of, and has been instructed in, the proper method of self-administration of medication;

(3) the board of education or the governing board or chief school administrator of a nonpublic school informs the parents or guardians of the pupil in writing that the district and its employees or agents or the nonpublic school and its employees or agents shall

6A:16-2.3 Required school health services

(a) Each district shall perform tuberculosis tests on students using methods as specifically directed by the New Jersey Department of Health and Senior Services, based upon the incidence of tuberculosis or reactor rates in specific communities or population groups as required by N.J.S.A. 18A:40-16 .

(b) Each district board of education shall develop and adopt written policies and procedures for the administration of medication to students and staff, which shall be developed in consultation with the school physician.

1. The policy shall require that only the following individuals be authorized to administer medication to students in schools:

i. The school physician;

ii. A certified or noncertified school nurse;

iii. A substitute school nurse employed by the district;

iv. The student's parent or guardian;

v. The student approved to self-administer pursuant to N.J.S.A. 18A:40- 12.3 and 12.4; and

vi. Other school employees trained and designated by the certified school nurse to administer epinephrine in an emergency pursuant to N.J.S.A. 18A:40-12.5 and 12.6.

(c) Reportable, communicable diseases, as identified pursuant to N.J.A.C. 8:57-1, whether confirmed or presumed, shall be immediately reported by telephone to the health officer of the jurisdiction wherein the diagnosis is made.

(d) The certified school nurse shall annually review immunization records to confirm with the medical provider that the medical condition for the exemption from immunization is applicable, pursuant to N.J.A.C. 8:57-4.3 .

(e) District boards of education shall develop written policies and procedures for sanitation and hygiene when handling blood and bodily fluids in conformance with N.J.A.C. 8:61-1.1(f) and in compliance with Centers for Disease Control guides which direct schools to implement Universal Precautions.

(f) District boards of education provide for implementation of Do Not Resuscitate orders written in consultation with the student's physician and approved by the school physician.

(g) District boards of education shall develop policies for the treatment of asthma in the school setting which shall include, but not be limited to, the following:

1. A requirement that each school nurse shall be authorized to administer asthma medication through use of a nebulizer;

2. A requirement that each school nurse receive training in airway management and in the use of nebulizers and inhalers consistent with nationally recognized standards, including, but not limited to, those of the National Institutes of Health and the American Academy of Allergy, Asthma and Immunology. Copies of these standards may be obtained by contacting the National Institutes of Health, 1 Center Drive MSC0188, Bethesda, Maryland 20892-0188 and the American Academy of Allergy, Asthma and Immunology, 111 E. Wells Street, Milwaukee, Wisconsin 53202; and

3. A requirement that each student authorized to use asthma medication pursuant to N.J.S.A. 18A:40-12.3 , or a nebulizer, have an asthma treatment plan prepared by the student's physician, which shall identify, at a minimum, asthma triggers and an individualized health care plan, pursuant to N.J.A.C. 6A:16-2.1(e) 1x, for meeting the medical needs of the student while attending school or a school-sponsored event.

(h) Each public and nonpublic school in the State shall have and maintain for the care of students at least one nebulizer in the office of the school nurse or a similar accessible location.

PREVENTING AND ADDRESSING CHALLENGING BEHAVIOR

Systems of the Human Body

The following is a listing of the eleven systems of the body with a brief explanation of each.

The Cardiovascular System

The cardiovascular system of the human body has one distinct job; that is to pump the blood to the different parts of the body. The central organ in this system is the heart. It is made up of cardiac tissue and its job is to pump the blood. It first pumps the blood to the lungs to get oxygen, and then to the various parts of the body for distribution. The blood travels through a series of arteries and veins. The difference between the two is that arteries carry oxygenated blood from the heart to the body, and the veins return the oxygen-free blood back to the heart. The circulatory is not complex, but it does an imperative job for the body.

The Digestive System

The digestive system is one of the most complex systems of the body. The digestive system provides the body's means of transforming food to energy. Food first enters the digestive system through the mouth, goes through multiple organs, until they are transformed into enzymes, glucose, and other nutrients that the body can use.

The Endocrine System

Next to the nervous system the endocrine system is the system that controls the body. However, the endocrine system uses hormones to stimulate the metabolic activities of the cells. These hormones are released into the blood stream. Tissue response to hormones usually occurs after a lag time of seconds or days. Once started the responses tend to be much more prolonged than those that are induced by the nervous system.

The organs of the endocrine system are small and unimpressive. The endocrine glands of the body include the pituitary, thyroid, parathyroid, adrenal, pineal, and thymus.

Hormones are chemical compounds that regulate metabolic function of cells in the body. There are two types of hormones: amino acid-based hormones and steroids. Most hormones are amino acid-based. Steroid hormones are synthesized from cholesterol. Only the gonadal hormones and adrenocortical hormones are steroids.

The Excretory System

The excretory system, or urinary system, is composed of multiple organs. The main organ of the urinary system is the kidney. The kidney performs dual tasks of filtering out wastes and purifying blood. The main function of the kidneys is to filter out wastes. Other organs in the urinary system include; the urinary bladder, the ureters, and the urethra. The ureters are two tubes that transport urine from the kidneys to the urinary bladder. The urinary bladder is a large hollow muscle sac that holds urine. The urethra is a tube that transports urine from the bladder to an opening outside the body.

The Immune System

The Immune system is the body's main defense against all foreign substances. Without the immune system, the human body would die immediately from foreign bacteria. Billions of which rest on the skin.

The Integumentary System

The integumentary system, commonly called the skin, enwraps the body and serves several purposes. First it offers protection to the underlying layers from the sun. It also serves in body temperature regulation. The skin is also home to millions of nerves that respond to temperature, touch, pressure, and pain.

The Muscular System

The muscular system is the largest system in the body. Muscles are located in practically every region of the body. The limbs are almost entirely made up of muscles. There are over forty muscles located in the skull. Muscles are unique because they can contract. This contraction sets muscles apart from all other tissues. There are three different types of muscles tissue, cardiac, skeletal, and smooth.

The Nervous System

The nervous system is the master controlling and communicating system of the body. Every thought, action, and emotion reflects its activity. The nervous system is by far the most rapid acting and complex system of the body. The cells of the nervous system communicate by means of electrical signals, which are rapid, specific, and usually cause almost immediate responses.

The nervous system is but one single system, but for convenience we divide it into two parts: the central nervous system (CNS) and the peripheral nervous system (PNS). The CNS consists of the brain and the spinal cord which are located in the dorsal body cavity. The CNS is the command center of the nervous system. It interprets incoming signals and responds to them based on past experiences, reflexes, and current conditions. The PNS is the part of the nervous system that is not part of the CNS. It consists mainly of the nerves that extend from the brain and the spinal cord. These nerves are called the cranial nerves and the spinal nerves, respectively. These peripheral nerves serve as the communications link from the body to the CNS.

The PNS can then be farther divided into two functional subdivisions. The sensory division is the division that contains the nerve fibers that carry impulses to the CNS from sensory receptors that are located throughout the body. There are two types of sensory fibers. The somatic afferents convey information from the skin, skeletal muscles, and joints. The visceral afferents convey impulses from the visceral organs. The other division of the PNS is the motor division. This division transports messages from the CNS to organs, muscles, and glands. The motor system can also be divided farther in to two parts. The somatic nervous system is composed of motor nerve fibers that connect the CNS to the skeletal muscles and is often referred to as the voluntary nervous system. The autonomic nervous system consists of nerve fibers that regulate the activity of smooth muscles, cardiac muscles, and glands. Since we usually cannot consciously control these activities, it is generally referred to as the involuntary nervous system.

The Reproductive System

The reproductive system is the system that allows for the continuation of the human species. This system is different in both males and females. The role of the male's reproductive system is to manufacture sperm and then to deliver them to the female's reproductive tract where fertilization may occur. The role of the female's reproductive system is basically the same except that it goes further if the sperm meets an egg. If fertilization occurs the female reproductive system is designed to nurture and care for the cell that will soon grow into a baby.

The sperm is produced in the male's testis and then travels through a series of ducts to reach the body exterior. The eggs are produced in the ovary of a female. When an egg is to be expelled or ovulated a "blister forms on the exterior of the ovary. When the "blister" bursts the egg is collected by the ends of the fallopian tubes and travels through the fallopian tubes where it can be fertilized by a single sperm.

If an egg is fertilized it travels down into the uterus where it embeds in the wall of the uterus. There it divides rapidly and the cells begin to specialize into the different organs of a pregnancy. Some of the cells form the amniotic sac while some form the placenta and the umbilical cord. Only a small number of these cells will eventually form the fetus.

The Respiratory System

The respiratory system supplies the body with oxygen; Air is inhaled through the nose or mouth. It then travels into the pharynx, passes through the larynx, and down the trachea. The trachea branch and air reaches the lungs where it will diffuse into the blood via the alveoli.

The Skeletal System

The skeletal system is the system that supports us and gives us our shape. Two main structures form the skeletal system: cartilage and bone. Cartilage is largely composed of water and contains no nerves or blood vessels. There are three types of cartilage. Hyaline cartilage provides support with flexibility and resistance. It is the most abundant cartilage. Hyaline cartilage is the cartilage that covers the bone ends at movable joints, connects the ribs to the sternum, forms the skeleton of the larynx or voice box, reinforces the passageways of the respiratory system, and forms the end of our nose. Elastic cartilage found in only two locations of the skeletal system which are supporting the external ear and forming the epiglottis. This cartilage is able to stretch and bend repetitively without braking or tearing. Fibrocartilages are cartilages that act as pads to soften the pressure that is exerted from the bones. This cartilage is found in the knee and forms the discs that are between the vertebrae.

Bone provides other important functions for us other than giving shape to the body. For one, they provide a hard framework that is able to support the body and cradle the delicate organs that it contains (One must not also forget that the bones themselves are also living organs.). They provide protection for the internal organs. For example, the fused bones of the cranium protect the brain from injury. The bones also allow for movement in that they are a place for the skeletal muscles to attach. In this way the bones act as levers to move parts of the body. The bones also store minerals that the body needs. The most important of these are calcium and phosphate. The bones are able to store the minerals and then release them into the bloodstream as ions. The bones also form most of the blood cells in the blood; this takes place in the bone marrow.

In all there are 206 named bones in the human skeleton. These are group into the axial and appendicular skeletons. The axial skeleton is formed by the bones of the head and trunk, and the appendicular skeleton is formed by the bones of the upper and lower limbs and the shoulder and hip bones.

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